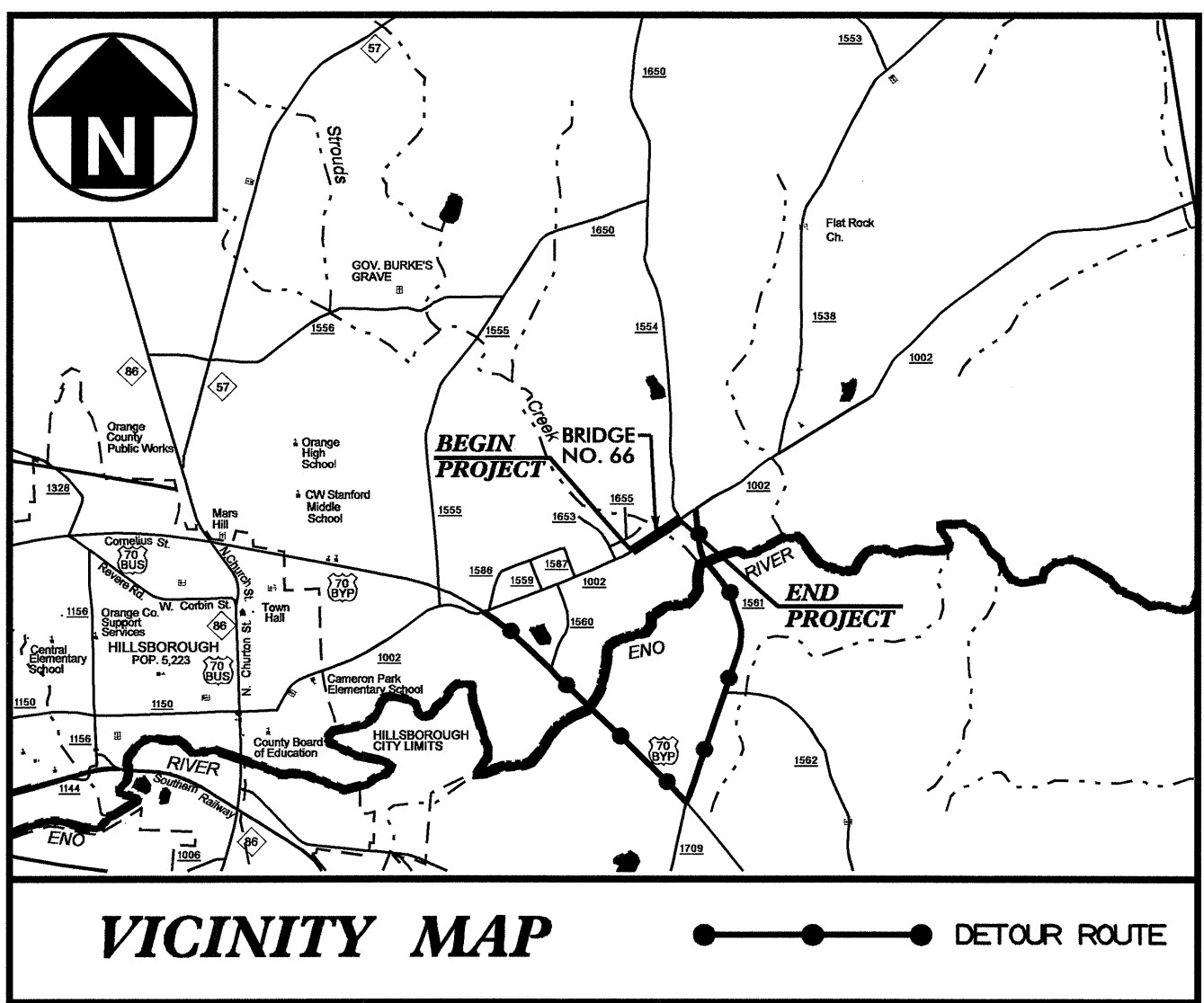


09/08/09

TIP PROJECT: B-4216

CONTRACT: C202267



NEAREST SHIPPING POINT: HILLSBOROUGH ON SOUTHERN RAILROAD, 3.2 MILES FROM BRIDGE.

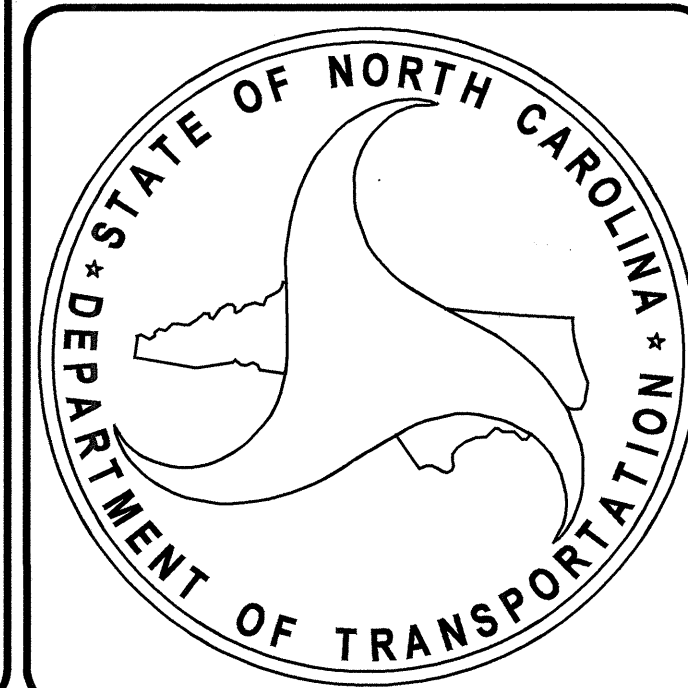
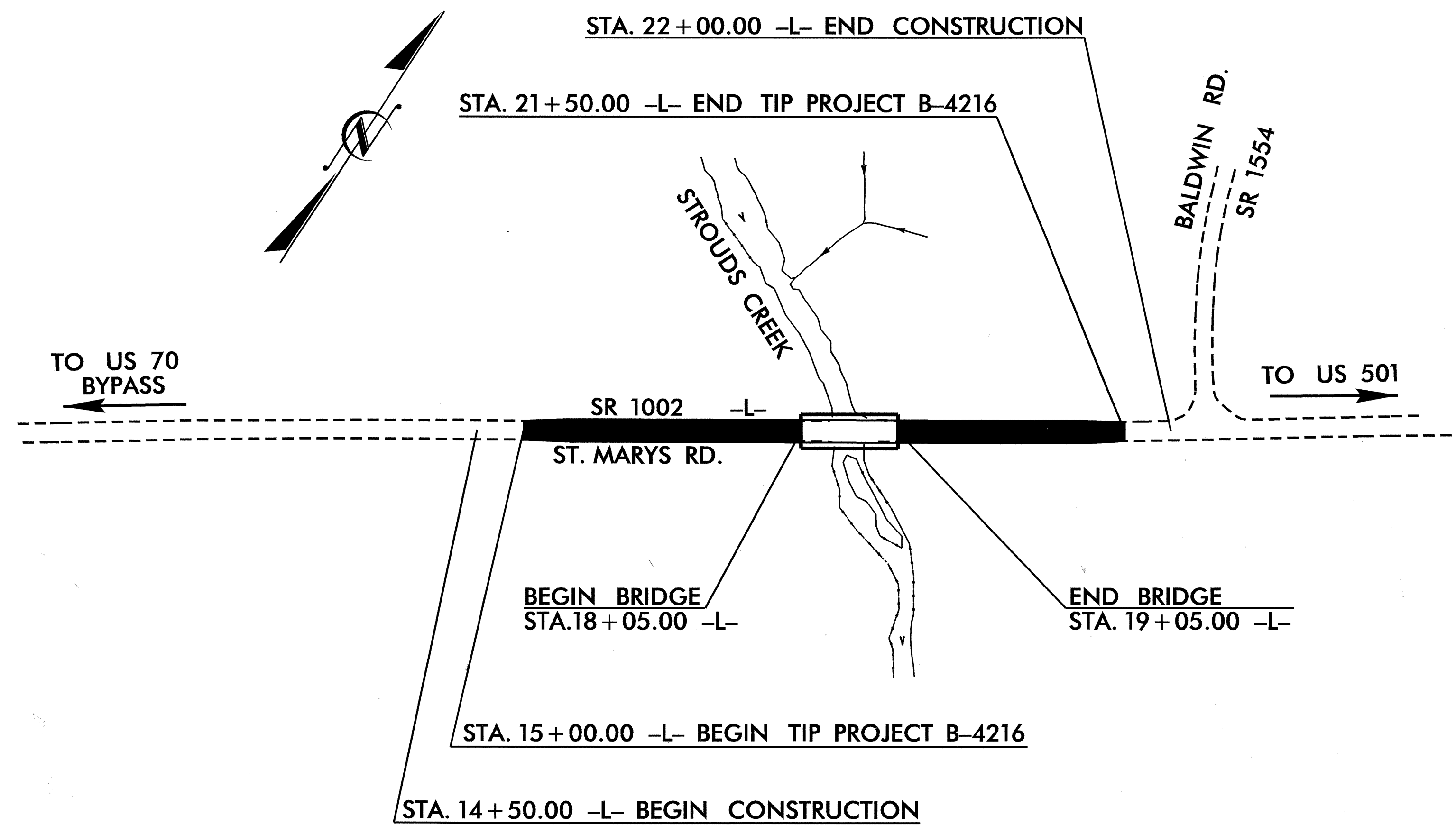
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ORANGE COUNTY

LOCATION: BRIDGE NO. 66 OVER STROUDS CREEK ON SR 1002
TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4216		
WAR. ELEMENT	F.A. PROJ. NO.	DESCRIPTION	
33562.1.1	BRSTP-1002(12)	P.E.	
33562.2.1	BRSTP-1002(12)	R/W, UTIL	
33562.3.1	BRSTP-1002(12)	CONST.	

STRUCTURE



DESIGN DATA

ADT 2009 =	11,000
ADT 2030 =	18,700
DHV =	10 %
D =	65 %
T =	4 %*
V =	50 MPH
* TTST 1% DUAL 3%	
FUNC. CLASS. = COLLECTOR	

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4216	=	0.104 MILES
LENGTH STRUCTURE TIP PROJECT B-4216	=	0.019 MILES
TOTAL LENGTH TIP PROJECT B-4216	=	0.123 MILES

Prepared In the Office of:
DIVISION OF HIGHWAYS
1000 BIRCH RIDGE DRIVE, RALEIGH, NC 27610

2006 STANDARD SPECIFICATIONS

LETTING DATE:
JANUARY 19, 2010

J.M. BAILEY, PE
PROJECT ENGINEER

D.A. DAVENPORT, JR., PE
PROJECT DESIGN ENGINEER

STRUCTURE DESIGN UNIT
1000 BIRCH RIDGE DRIVE
RALEIGH, NC 27610

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE DESIGN ENGINEER

P.E.

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED
DIVISION ADMINISTRATOR

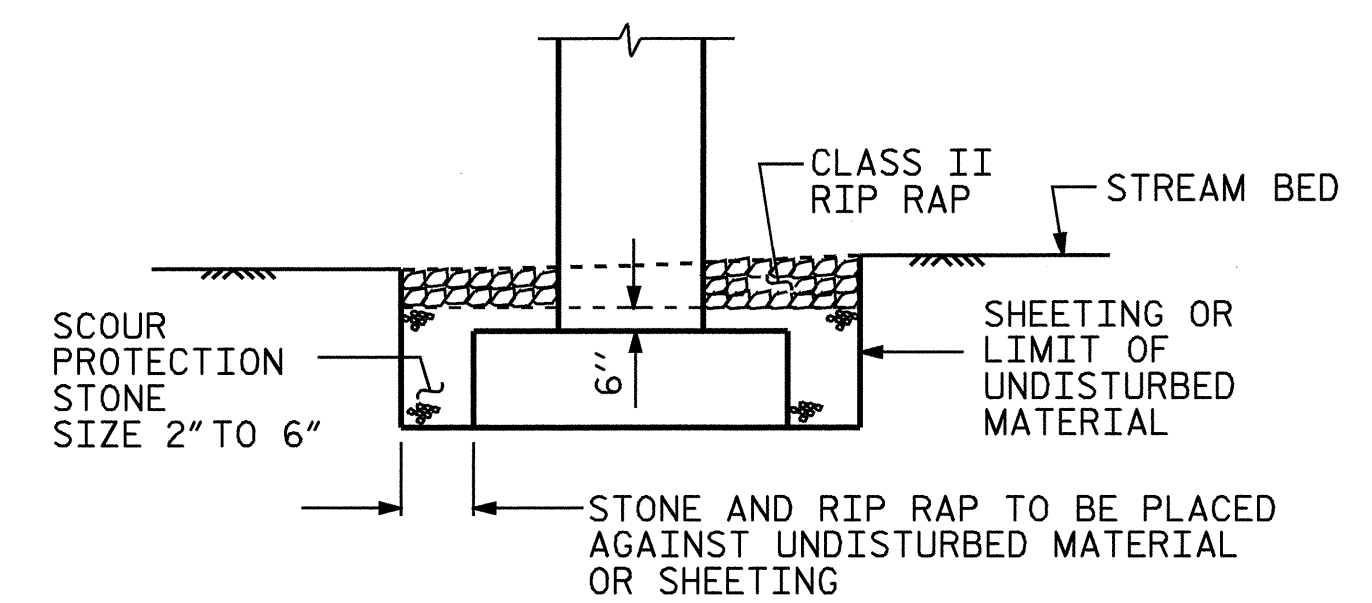
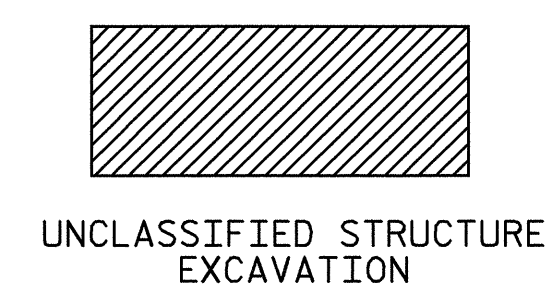
DATE

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505
500
495
490
485
480
475
470

-2.1709% +4.7527%
PI = 18+25.00 -L-
EL. = 489.200
VC = 550'

GRADE DATA



PIER SCOUR PROTECTION
RIP RAP NOT TO BE ABOVE THE STREAM BED

CAUSEWAY CONSTRUCTION SEQUENCE

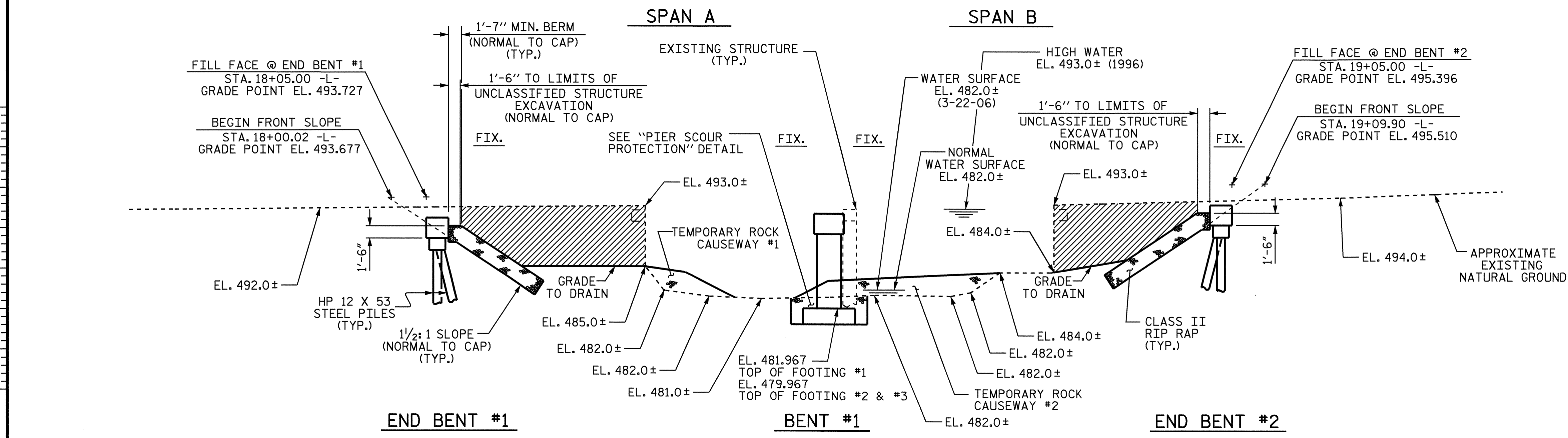
- PLACE CAUSEWAY #1.
- REMOVE EXISTING ABUTMENT #1.
- REMOVE CAUSEWAY #1.
- PLACE CAUSEWAY #2.
- REMOVE EXISTING BENT #1.
- BUILD BENT #2.
- REMOVE CAUSEWAY #2.

PROJECT NO. B-4216
ORANGE COUNTY
STATION: 18+55.00 -L-

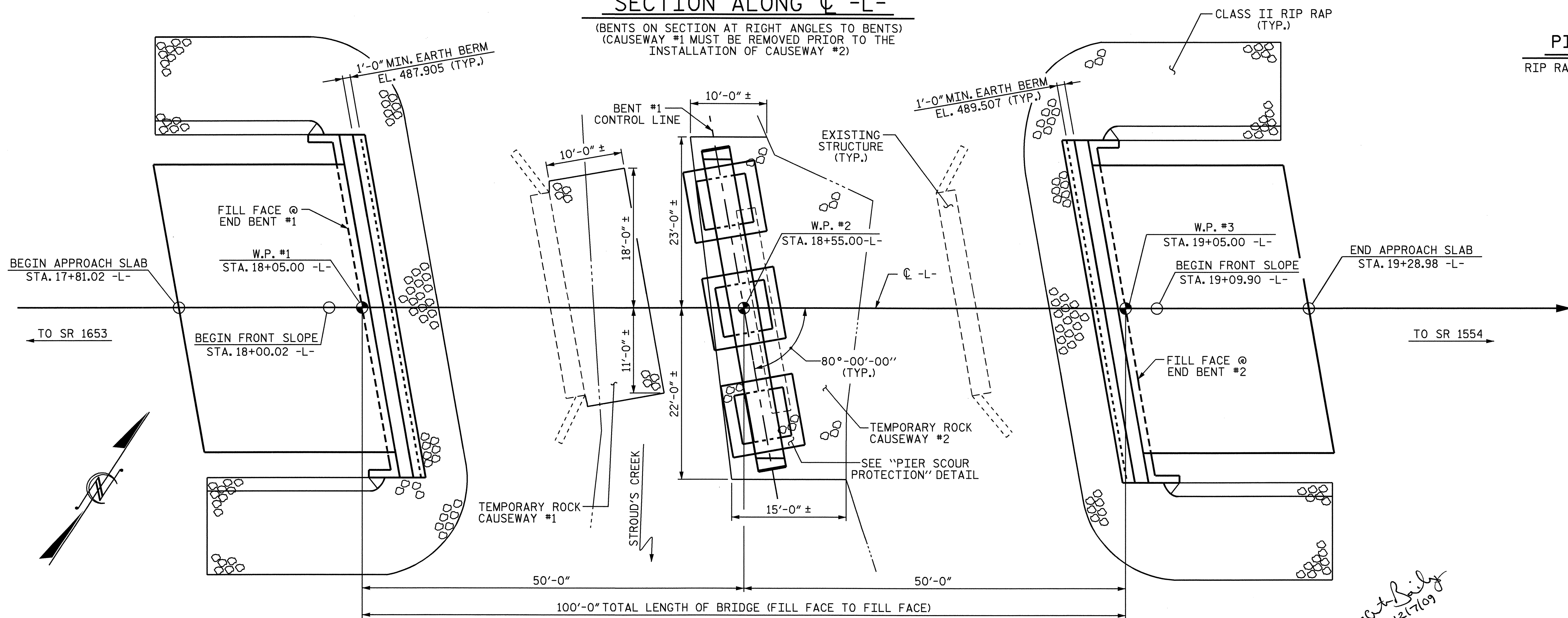
SHEET 1 OF 3 REPLACES BRIDGE #66

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
**GENERAL DRAWING FOR
BRIDGE OVER STROUD'S
CREEK ON SR 1002
BETWEEN SR 1653
AND SR 1554**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-1
1			3			TOTAL SHEETS 24
2			4			



SECTION ALONG C-L-L
(BENTS ON SECTION AT RIGHT ANGLES TO BENTS)
(CAUSEWAY #1 MUST BE REMOVED PRIOR TO THE INSTALLATION OF CAUSEWAY #2)



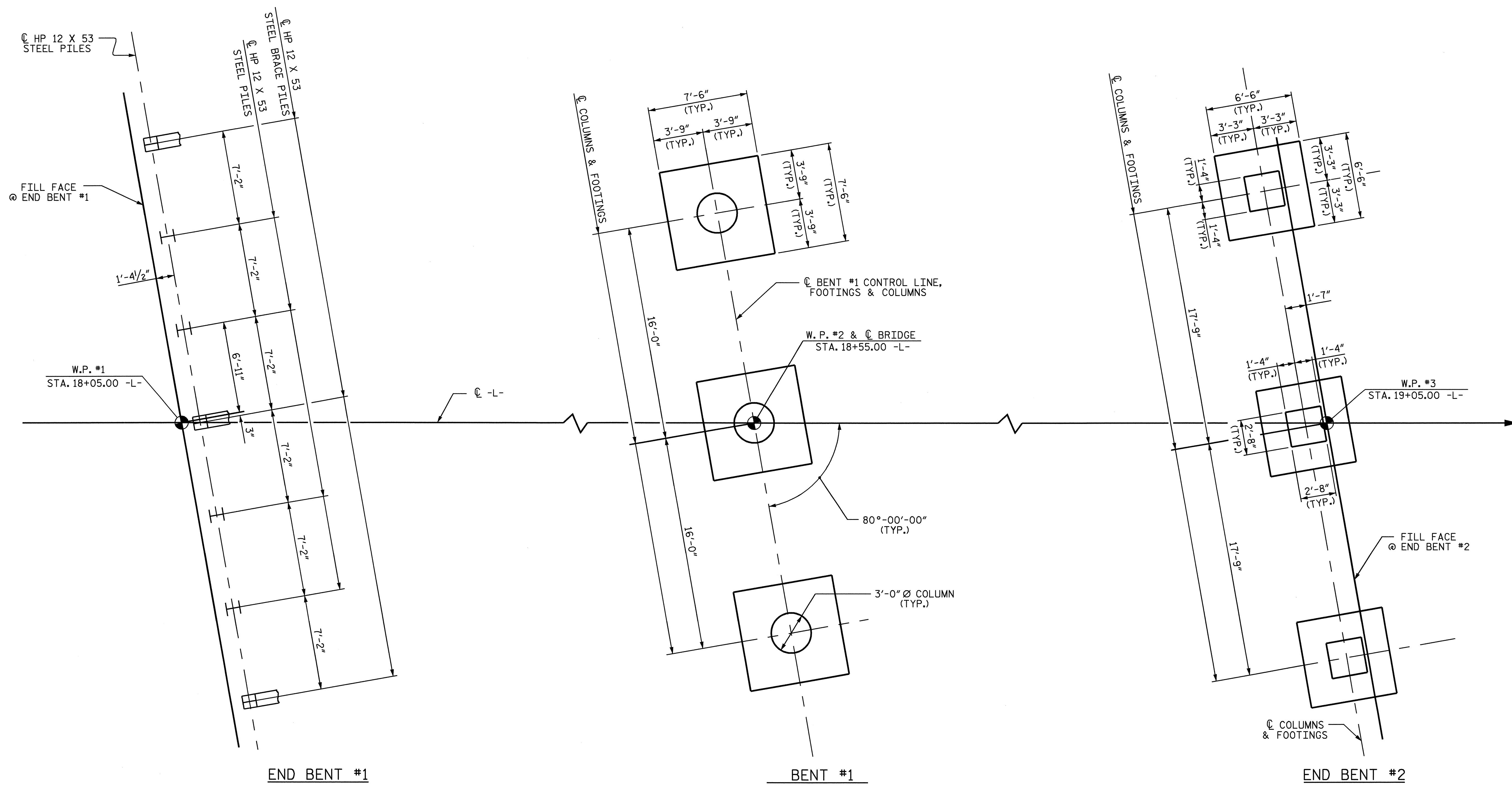
PLAN
(PILES ARE NOT SHOWN FOR CLARITY)

DRAWN BY: M. G. SHAIKH DATE: 10-09
CHECKED BY: W. B. HILL DATE: 10-09

07-DEC-2009 08:03
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James M. Hill
12-17-09
NORTH CAROLINA
PROFESSIONAL
SEAL
022506
ENGINEER
W. ARTHUR BILLET

NORTH CAROLINA
PROFESSIONAL
SEAL
10730
ENGINEER
DAVID B. BILLET



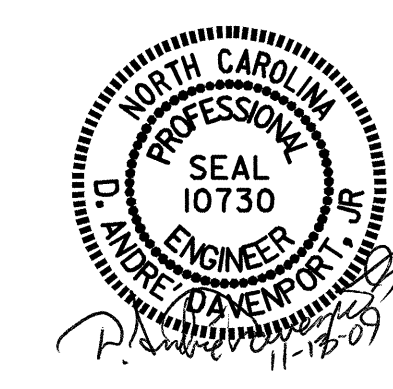
FOUNDATION LAYOUT

DIMENSIONS LOCATING PILES ARE SHOWN TO PILE CENTERLINE.
 BRACE PILES AT END BENT #1 ARE BATTERED 3 : 12.

PROJECT NO. B-4216
ORANGE COUNTY
 STATION: 18+55.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GENERAL DRAWING FOR
 BRIDGE OVER STROUD'S
 CREEK ON SR 1002
 BETWEEN SR 1653
 AND SR 1554

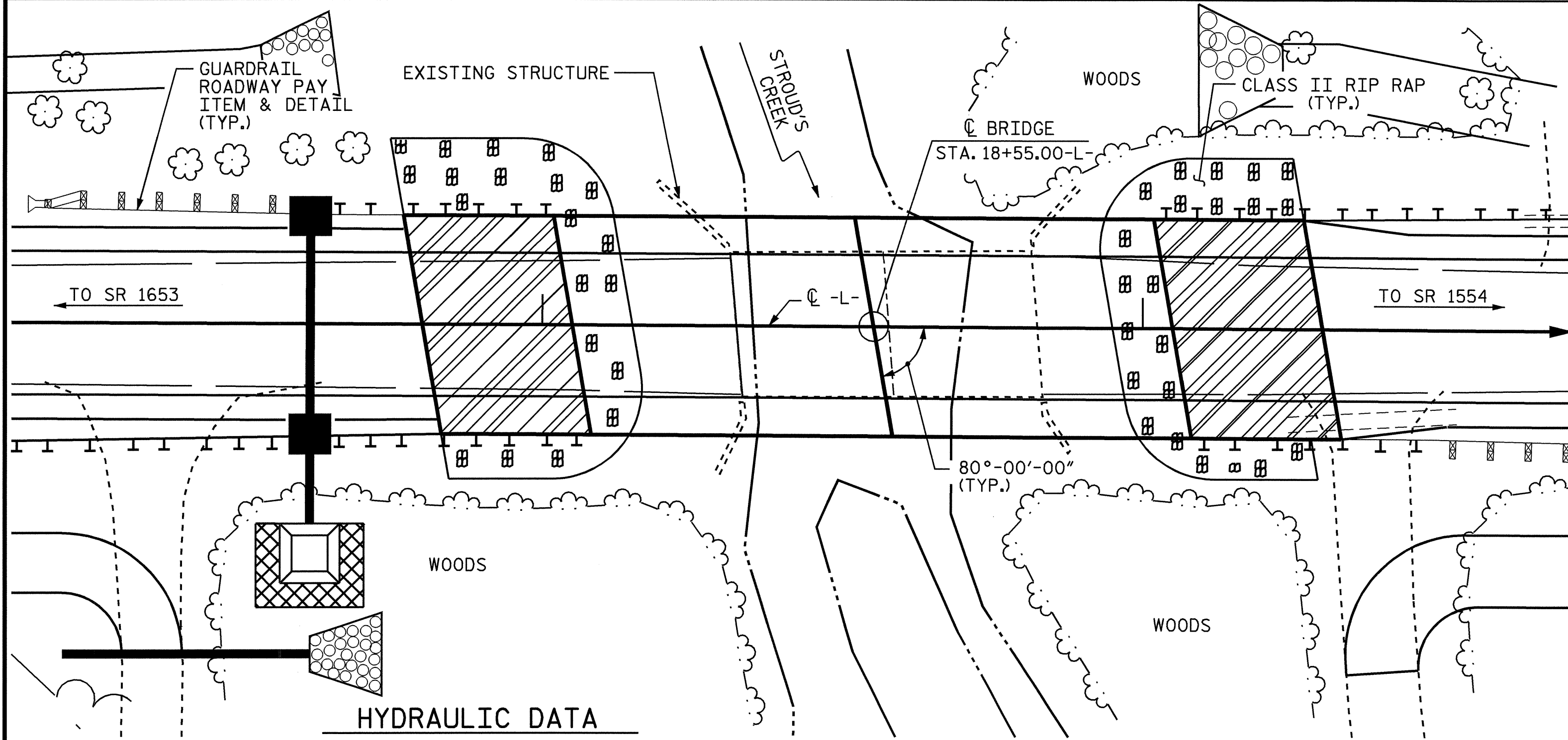


DRAWN BY : M. G. SHAIKH DATE : 10-09
 CHECKED BY : W. B. HILL DATE : 10-09

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REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-2	
1			3			TOTAL SHEETS 24	
2			4				

**BENCH MARK #1 : RAILROAD SPIKE SET IN 20" Ø OAK TREE
233.74' RIGHT OF STA. 18+95.00 -L-, ELEV. 482.870**



HYDRAULIC DATA

DESIGN DISCHARGE	= 2430 CFS.
FREQUENCY OF DESIGN FLOOD	= 50 YEAR
DESIGN HIGH WATER ELEVATION	= 490.200
DRAINAGE AREA	= 8.75 SQ. MI.
BASIC DISCHARGE(Q100)	= 3629 CFS.
BASIC HIGH WATER ELEVATION	= 492.200

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	= 4500 CFS.
FREQUENCY OF OVERTOPPING FLOOD	= 100 YEAR +
OVERTOPPING FLOOD ELEVATION	= 493.300

FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

LOCATION SKETCH

NOTES

ASSUMED LIVE LOAD = HS20 OR ALTERNATE LOADING, EXCEPT THAT CORED SLAB UNITS HAVE BEEN DESIGNED FOR HS25.
 FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.
 FOR EROSION CONTROL MEASURES SEE EROSION CONTROL PLANS.
 THIS BRIDGE HAS BEEN DESIGNED BY THE STRENGTH DESIGN METHOD AS SPECIFIED IN AASHTO STANDARD SPECIFICATIONS.
 THE EXISTING STRUCTURE CONSISTING OF 2 SIMPLE SPANS @ 25'-2" TIMBER DECK WITH 2 1/2" ASPHALT WEARING SURFACE ON I-BEAMS ON ABUTMENTS & MASS CONCRETE INTERIOR BENT WITH A CLEAR ROADWAY WIDTH OF 24'-6" AND LOCATED AT THE PROPOSED SITE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT.
 REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL INTO THE WATER. THE CONTRACTOR SHALL REMOVE THE BRIDGE AND SUBMIT PLANS FOR DEMOLITION IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.
 THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA ON SHEET S-1 SHALL BE EXCAVATED FOR A DISTANCE OF 30 FT. EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE MEASURED AND PAID FOR AT THE CONTRACT UNIT PRICE PER CUBIC YARD FOR UNCLASSIFIED STRUCTURE EXCAVATION.
 THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.
 FOR CONCRETE WEARING SURFACE, SEE SPECIAL PROVISIONS.
 FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
 THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH HEC 18 "EVALUATING SCOUR AT BRIDGES", MAY, 2001.
 FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
 THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AASHTO STANDARD SPECIFICATIONS FOR SEISMIC DESIGN OF HIGHWAY BRIDGES FOR SEISMIC PERFORMANCE CATEGORY A.
 FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

DRIVE PILES AT END BENT NO.1 AND END BENT NO.2 TO A REQUIRED BEARING CAPACITY OF 140 TONS PER PILE. THE REQUIRED BEARING CAPACITY IS EQUAL TO THE ALLOWABLE BEARING CAPACITY WITH A MINIMUM FACTOR OF SAFETY OF TWO.
 STEEL H-PILE POINTS ARE REQUIRED FOR STEEL H-PILES AT END BENT NO.1. AND END BENT NO.2. SEE PILES SPECIAL PROVISIONS.
 THE ALLOWABLE BEARING CAPACITY FOR PILES AT END BENT NO.1 AND END BENT NO.2 IS 70 TONS PER PILE.
 THE SCOUR CRITICAL ELEVATION FOR BENT NO.1 IS THE BOTTOM OF FOOTING ELEVATION. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.
 THE REQUIRED BEARING CAPACITY FOR SPREAD FOOTINGS AT BENT NO.1 IS 15 TONS PER SQUARE FOOT. CHECK FIELD CONDITIONS FOR THE REQUIRED BEARING CAPACITY JUST PRIOR TO PLACING CONCRETE.
 THE ALLOWABLE BEARING CAPACITY FOR SPREAD FOOTINGS AT BENT NO.1 IS 5 TONS PER SQUARE FOOT.
 CARRY IN SPREAD FOOTINGS AT BENT NO.1 AT LEAST 12 INCHES INTO CRYSTALLINE ROCK WITH MINIMUM THICKNESS AS SHOWN ON THE PLANS.
 INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 18+55.00-L-."
 FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.
 FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
 AT THE CONTRACTOR'S OPTION, AND UPON REMOVAL OF THE CAUSEWAY, THE CLASS II RIP RAP USED IN THE CAUSEWAY MAY BE PLACED AS RIP RAP SLOPE PROTECTION OR PIER SCOUR PROTECTION. SEE SPECIAL PROVISIONS FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY ACCESS AT STATION 18+55.00 -L-.
 FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.
 NO SEPARATE PAYMENT WILL BE MADE FOR PIER SCOUR PROTECTION. THE ENTIRE COST OF SAME SHALL BE INCLUDED IN THE LUMP SUM PRICE FOR "FOUNDATION EXCAVATION FOR BENT."
 FOR CURING CONCRETE, SEE SPECIAL PROVISIONS.
 FOR PILES, SEE SPECIAL PROVISIONS.

THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 400 TONS OF REINFORCING STEEL, ONE 30 INCH SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 400 TONS OF REINFORCING STEEL, TWO 30 INCH SAMPLES OF EACH SIZE BAR USED. THE BARS FROM WHICH THE SAMPLES ARE TAKEN MUST THEN BE SPLICED WITH REPLACEMENT BARS OF THE SIZE AND LENGTH OF THE SAMPLE, PLUS A MINIMUM LAP SPLICE OF THIRTY BAR DIAMETERS.

TOTAL BILL OF MATERIAL

	CONSTRUCTION, MAINTENANCE, AND REMOVAL OF TEMPORARY ACCESS	REMOVAL OF EXISTING STRUCTURE	FOUNDATION EXCAVATION FOR BENT	UNCLASSIFIED STRUCTURE EXCAVATION	CONCRETE WEARING SURFACE	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS
	LUMP SUM	LUMP SUM	LUMP SUM	CU. YD.	SQ. FEET	SQ. FEET	CU. YD.	LUMP SUM
SUPERSTRUCTURE					3533	4829		
END BENT NO. 1				335			16.6	
BENT NO. 1			LUMP SUM				35.3	
END BENT NO. 2				240			16.6	
TOTAL	LUMP SUM	LUMP SUM	LUMP SUM	575	3533	4829	68.5	LUMP SUM

TOTAL BILL OF MATERIAL

	REINFORCING STEEL	SPIRAL COLUMN REINFORCING STEEL	HP 12 X 53 STEEL PILES	STEEL PILE POINTS	2 BAR METAL RAIL	1'-2" X 2'-9 1/16" CONCRETE PARAPET	RIP RAP CLASS II (2'-0" THICK)	FILTER FABRIC FOR DRAINAGE	ELASTOMERIC BEARINGS	EVAZOTE JOINT SEALS	3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLABS	
	LBS.	LBS.	NO.	LIN. FT.	EA.	LIN. FT.	LIN. FT.	TONS	SQ. YD.	LUMP SUM	LUMP SUM	LIN. FT.
SUPERSTRUCTURE						179.519	195.431					1268.583
END BENT NO. 1	2,331		7	70	7			210	230			
BENT NO. 1	6,540	595										
END BENT NO. 2	2,350		7	70	7			265	295			
TOTAL	11,221	595	14	140	14	179.519	195.431	475	525	LUMP SUM	LUMP SUM	1268.583

DRAWN BY : M. G. SHAIKH DATE : 10-09
 CHECKED BY : W. B. HILL DATE : 10-09

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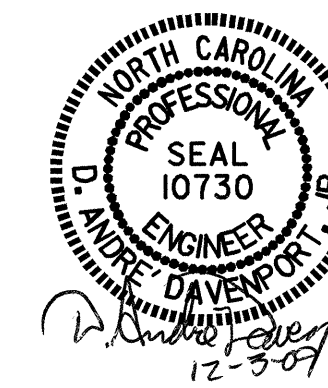
PROJECT NO. B-4216
ORANGE COUNTY
 STATION: 18+55.00 -L-

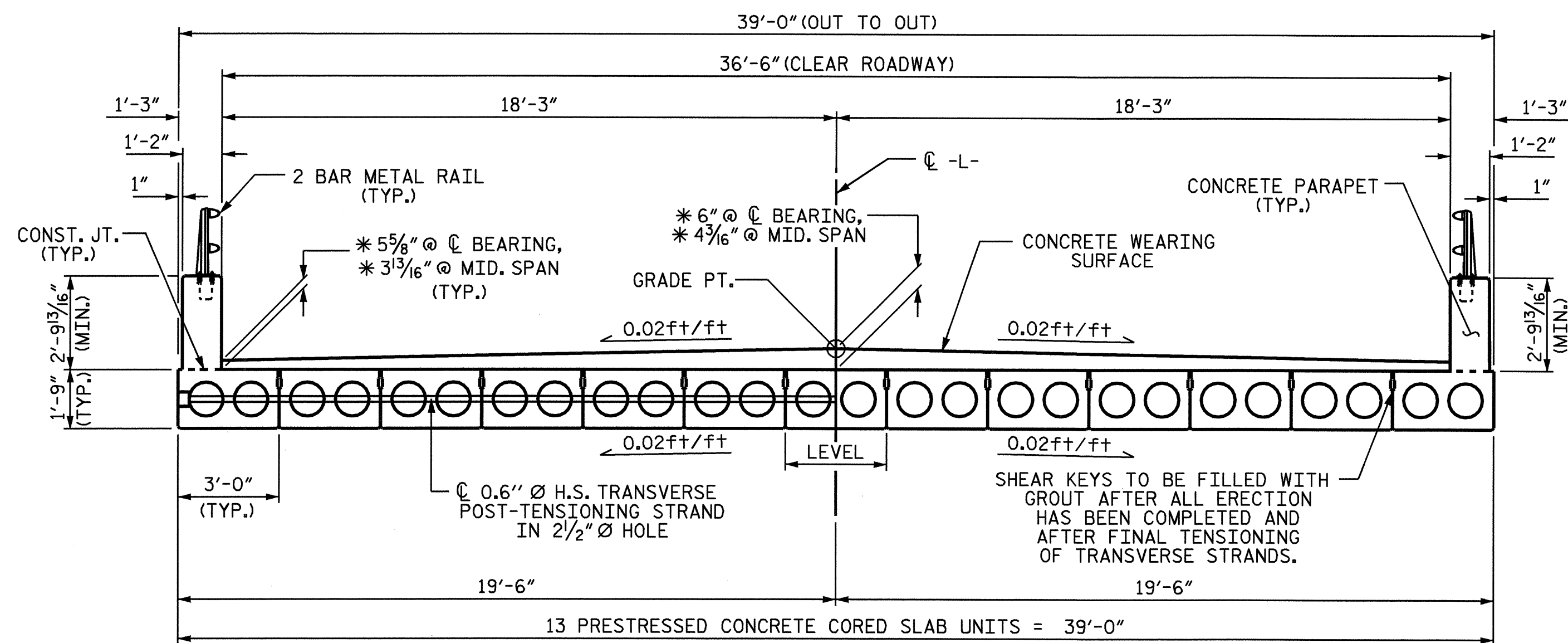
SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**GENERAL DRAWING FOR
 BRIDGE OVER STROUD'S
 CREEK ON SR 1002
 BETWEEN SR 1653
 AND SR 1554**

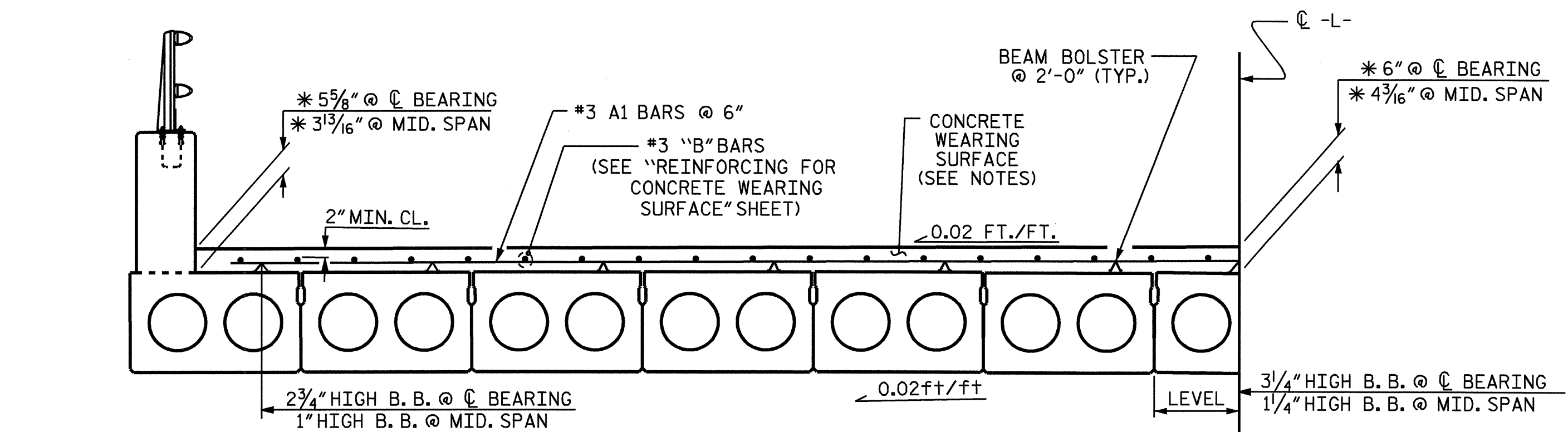
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-3
1			3			TOTAL SHEETS 24
2			4			



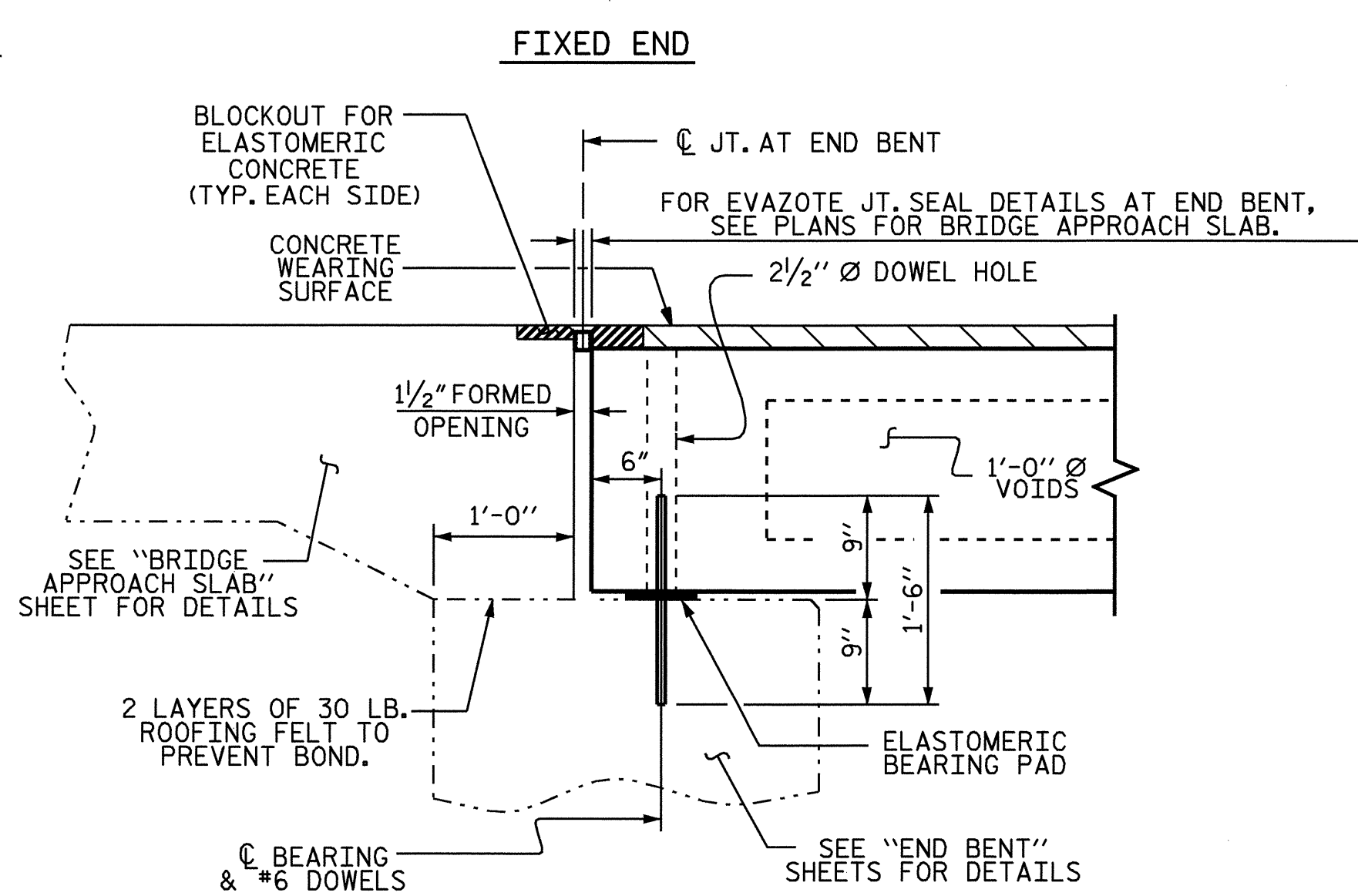


TYPICAL SECTION

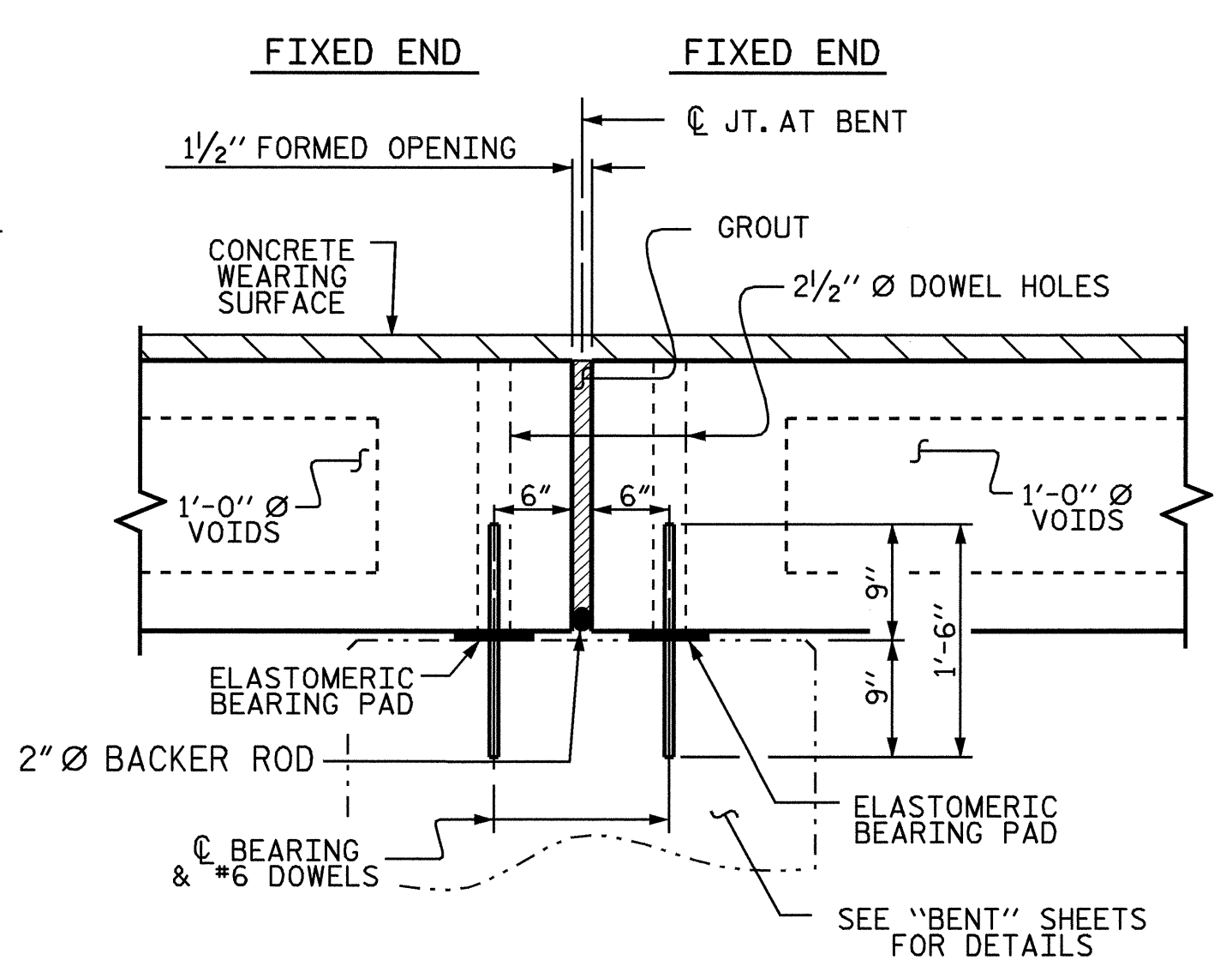
THE MINIMUM HEIGHT OF THE CONCRETE PARAPET IS SHOWN. THE HEIGHT OF THE CONCRETE PARAPET VARIES WHILE THE TOP OF THE RAIL FOLLOWS THE PROFILE OF THE GUTTER LINE.



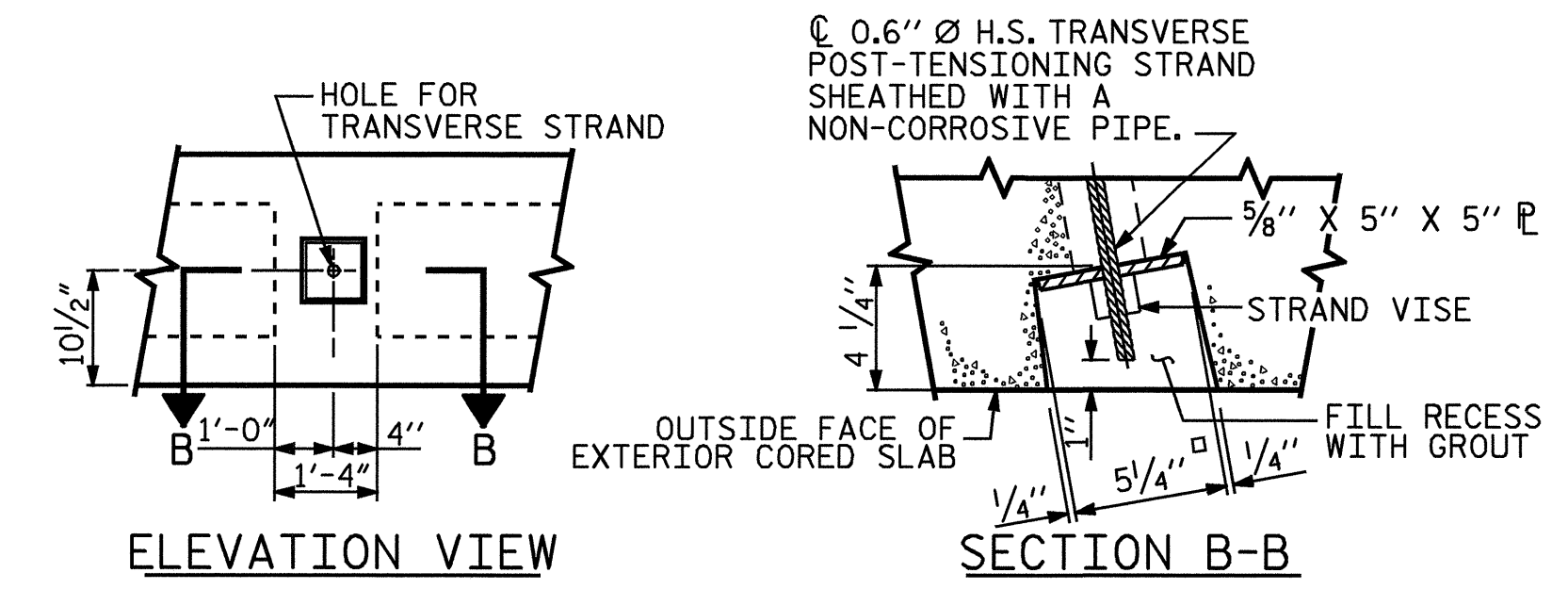
REINFORCING FOR CONCRETE WEARING SURFACE
(SEE "REINFORCING FOR CONCRETE WEARING SURFACE" SHEET)
(HALF TYPICAL SECTION)



SECTION AT END BENT



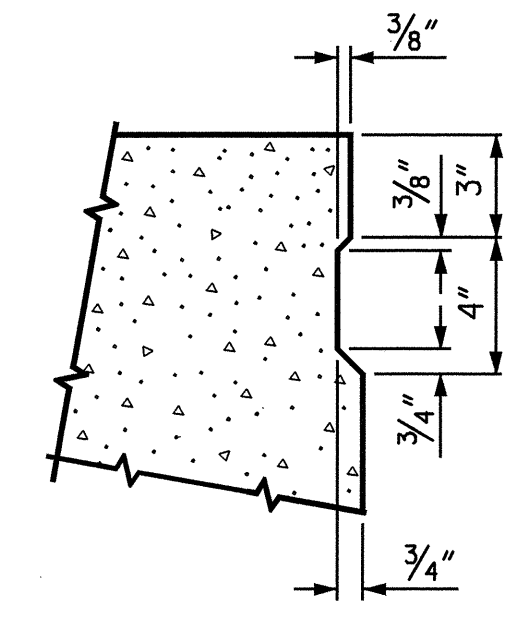
SECTION AT BENT



ELEVATION VIEW

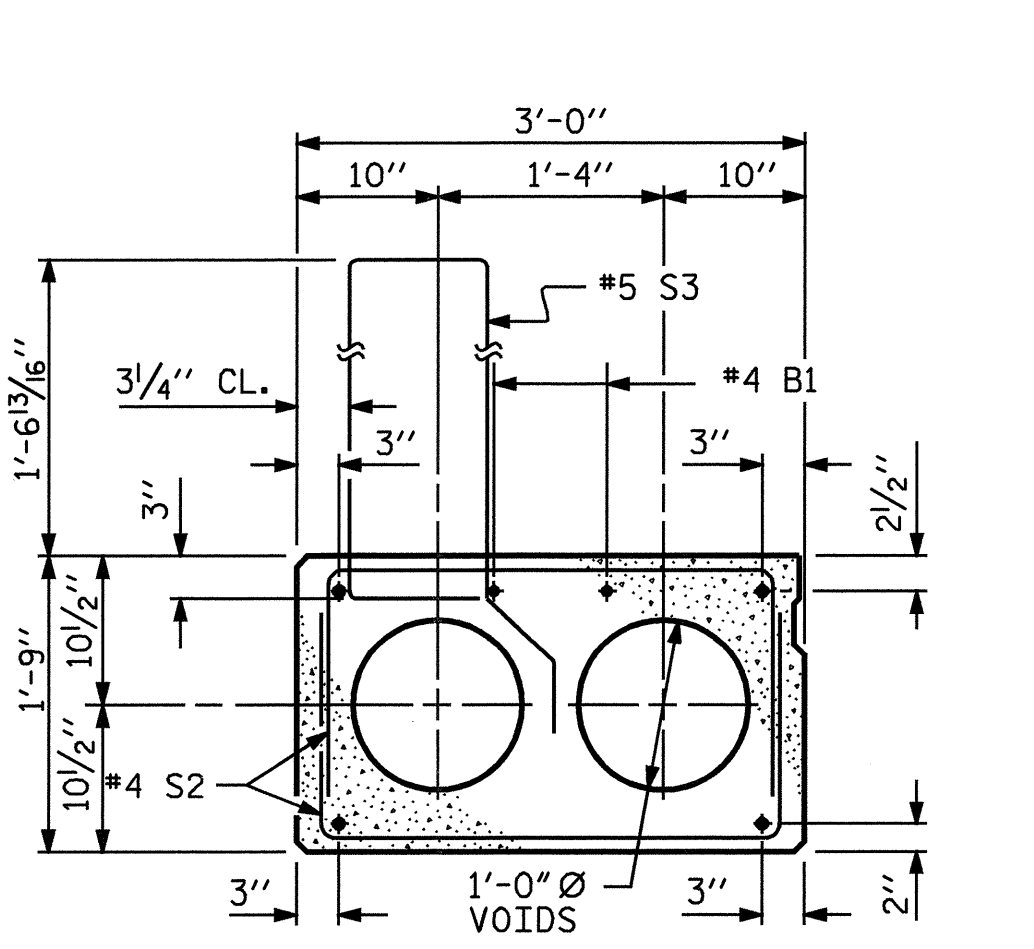
SECTION B-B

GROUTED RECESS AT END OF POST-TENSIONED STRAND CORED SLABS



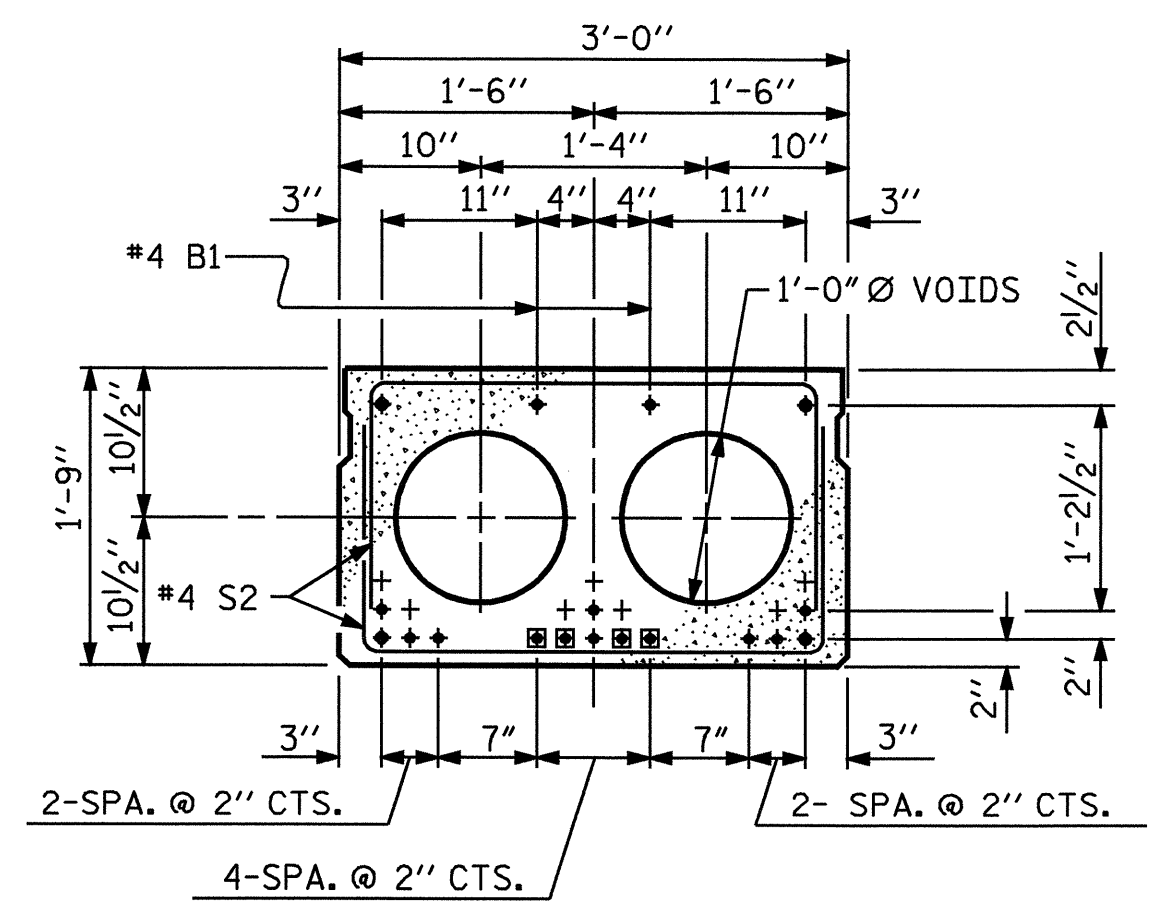
SHEAR KEY DETAIL

NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR CORED SLABS.



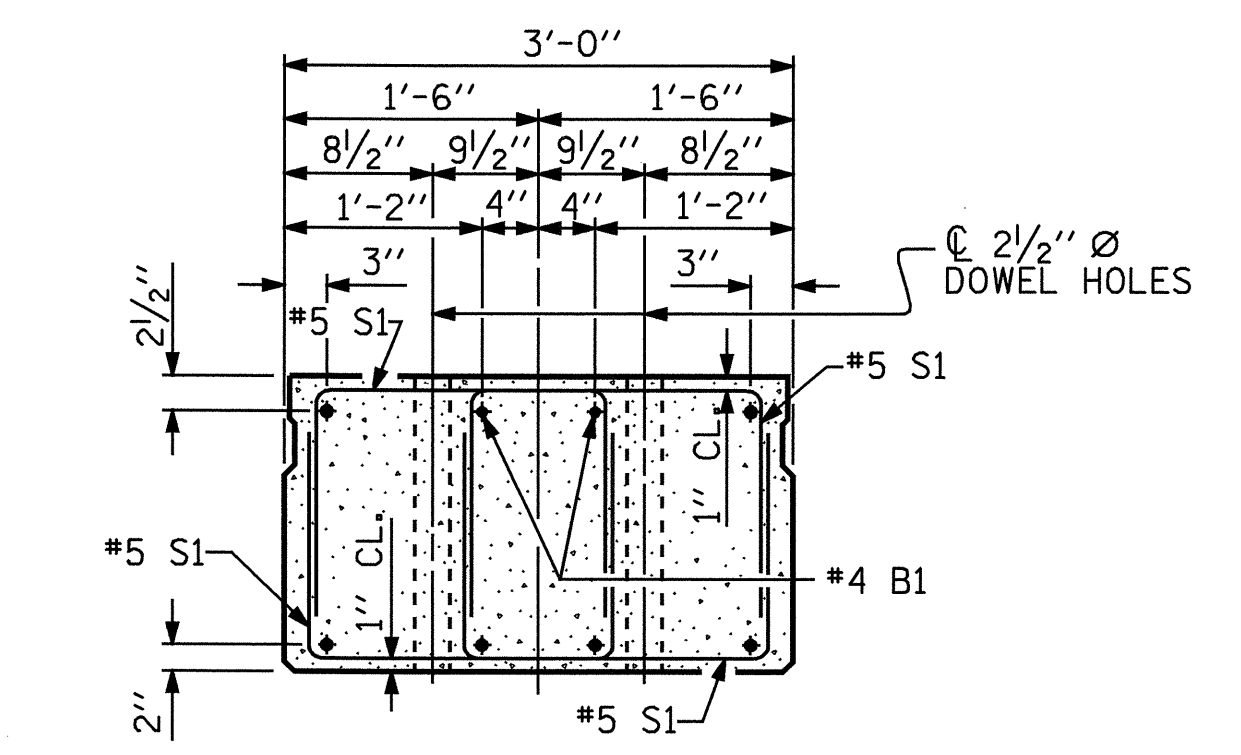
EXTERIOR SLAB SECTION

(FOR PRESTRESSED STRAND LAYOUT, SEE INTERIOR SLAB SECTION.)



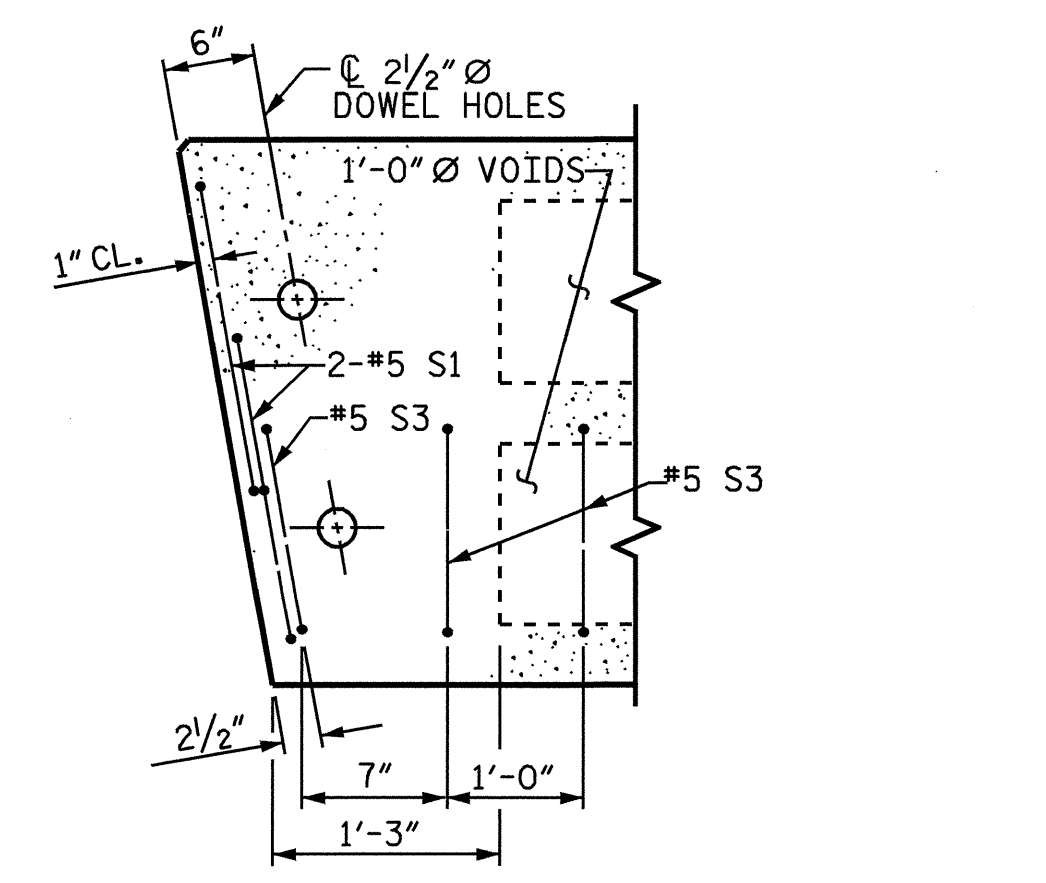
INTERIOR SLAB SECTION 16-0.6" Ø LOW RELAXATION STRAND LAYOUT

■ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 4'-6" FROM END OF CORED SLAB UNIT, SEE STANDARD SPECIFICATIONS ARTICLE 1078-7.



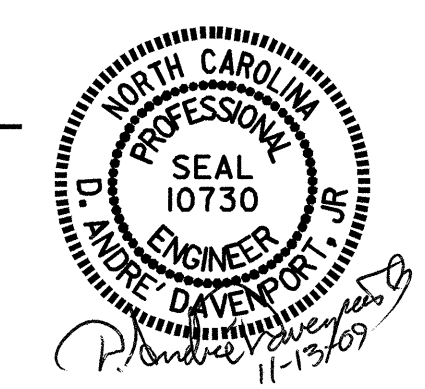
END ELEVATION

SHOWING PLACEMENT OF DOUBLE STIRRUPS AND LOCATION OF DOWEL HOLES. (STRAND LAYOUT NOT SHOWN) INTERIOR SLAB SECTION SHOWN-EXTERIOR SLAB SECTION SIMILAR EXCEPT SHEAR KEY LOCATION.



PART PLAN-EXTERIOR SECTION

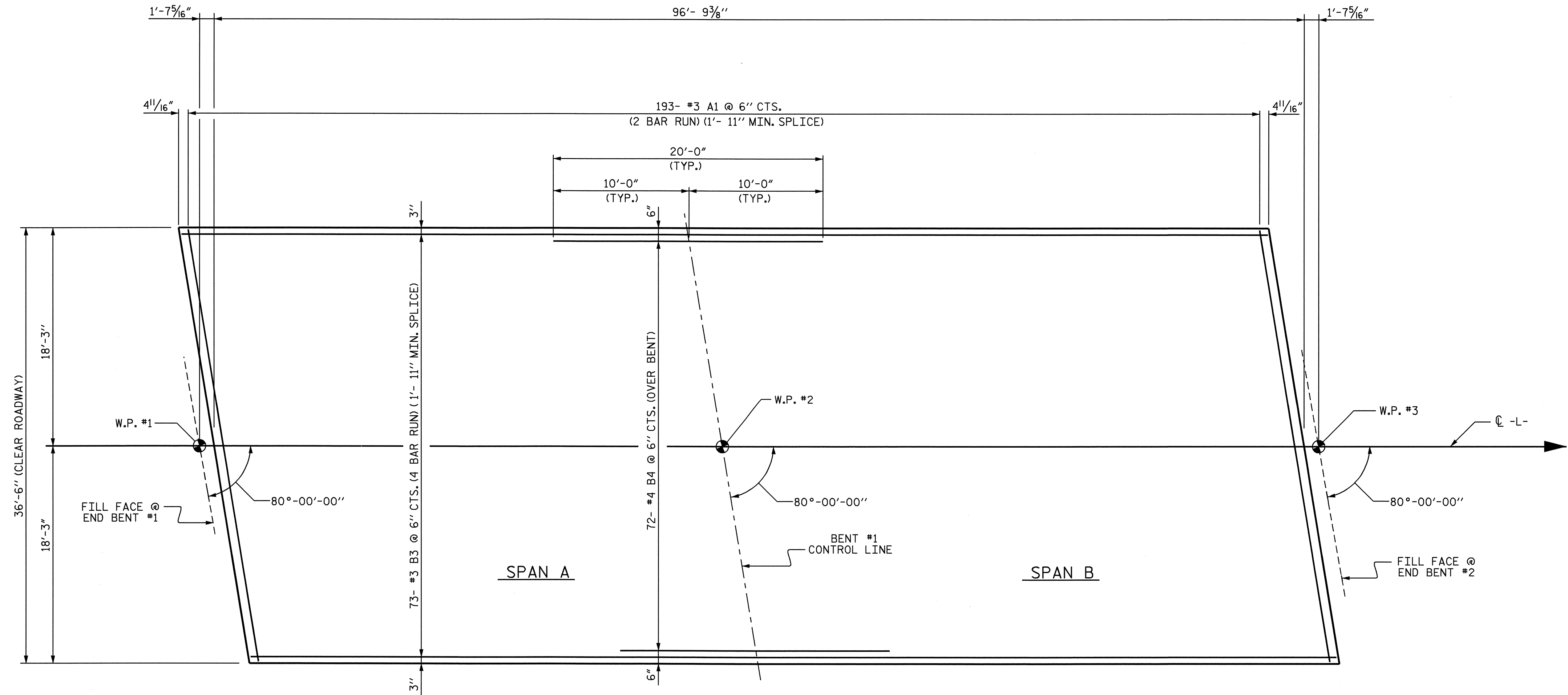
ASSEMBLED BY :	M. G. SHAIKH	DATE :	04-17-07
CHECKED BY :	W. B. HILL	DATE :	05-15-07
DRAWN BY :	WJH 4/89	REV. 8/16/99	RWW/LES
CHECKED BY :	FCJ 5/89	REV. 7/10/00	RWW/LES
		REV. 5/1/06	TLA/GM



PROJECT NO. B-4216
ORANGE COUNTY
STATION: 18+55.00 -L-

SHEET 1 OF 6

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLAB UNIT					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-4
					TOTAL SHEETS 24



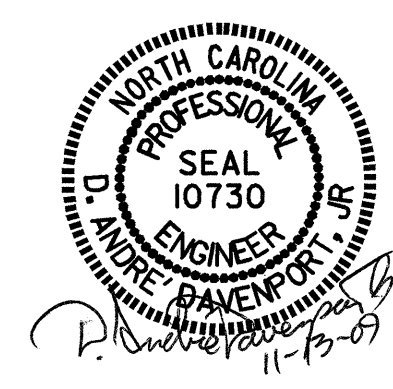
PLAN OF REINFORCING STEEL FOR CONCRETE WEARING SURFACE

PROJECT NO. B-4216
ORANGE COUNTY
 STATION: 18+55.00 -L-

SHEET 2 OF 6

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

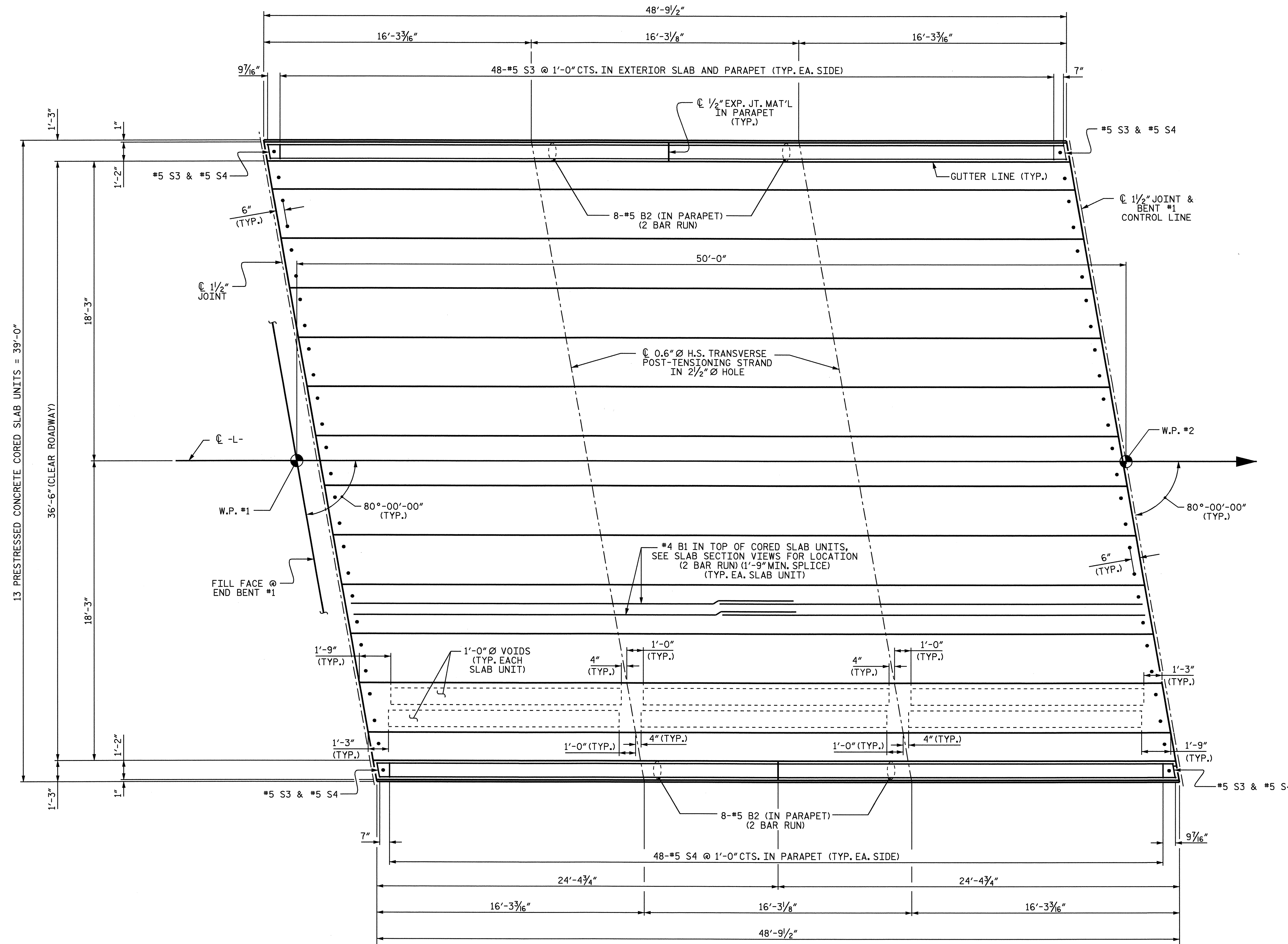
**REINFORCING STEEL
 FOR CONCRETE
 WEARING SURFACE**



DRAWN BY : M. G. SHAIKH DATE : 04-23-07
 CHECKED BY : W. B. HILL DATE : 05-15-07

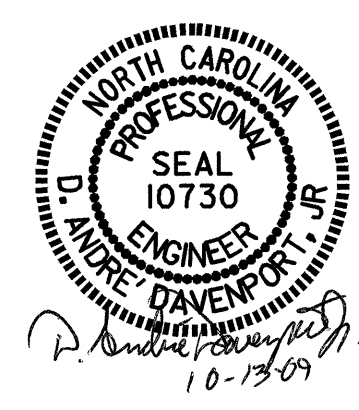
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			24



PROJECT NO. B-4216
ORANGE COUNTY
 STATION: 18+55.00 -L-
 SHEET 3 OF 5

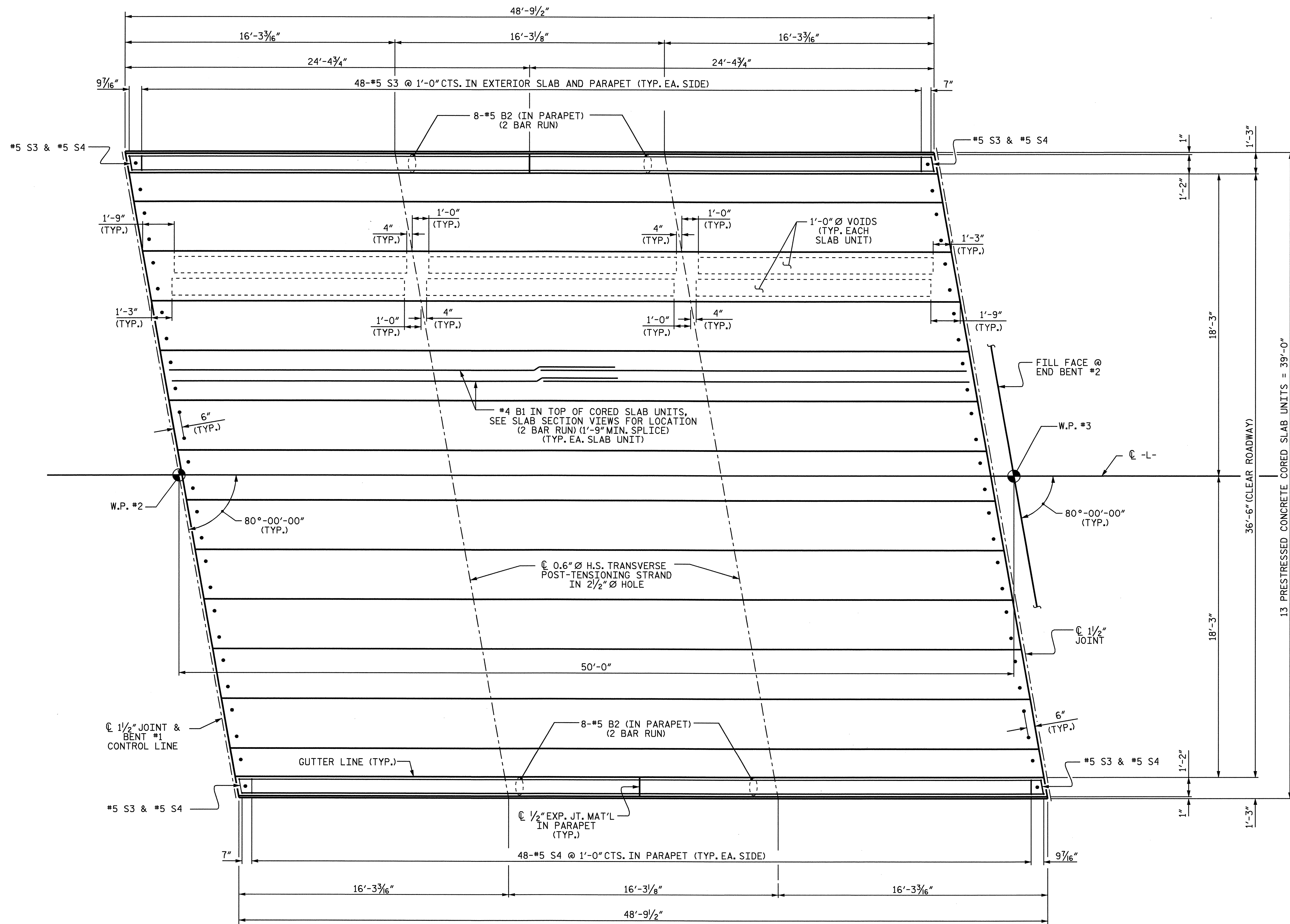
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 PLAN OF SPAN A



DRAWN BY : M. G. SHAIKH DATE 04-18-07
 CHECKED BY : W. B. HILL DATE 05-15-07

13-OCT-2009 08:12
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REVISIONS						SHEET NO. S-6
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 24
2			4			



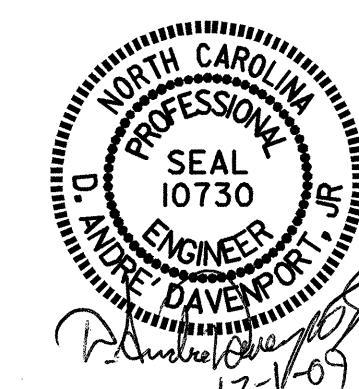
PLAN OF SPAN B

PROJECT NO. B-4216
ORANGE COUNTY
 STATION: 18+55.00 -L-

SHEET 4 OF 6

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

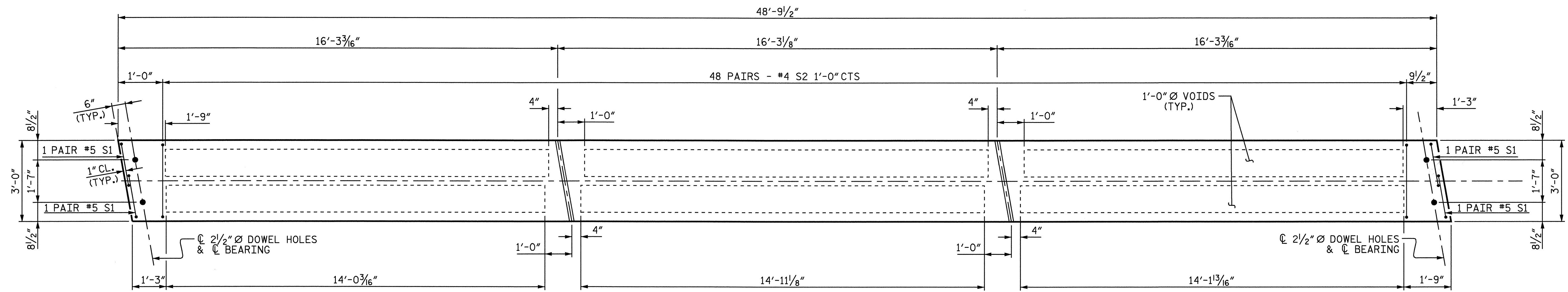
SUPERSTRUCTURE
 PLAN OF SPAN B



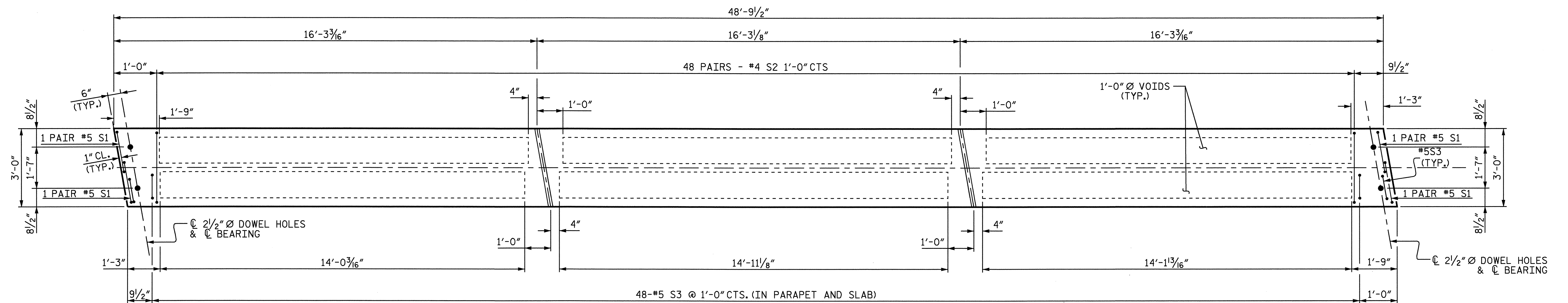
DRAWN BY : M. G. SHAIKH DATE : 04-18-07
 CHECKED BY : W. B. HILL DATE : 05-15-07

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS
2			4			24



PLAN OF INTERIOR CORED SLAB UNIT (SPAN A & B)



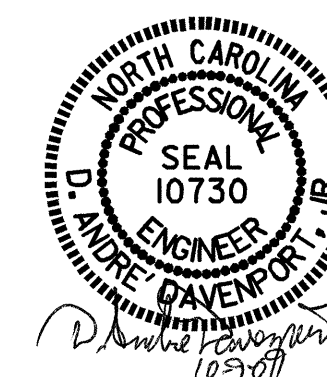
PLAN OF EXTERIOR CORED SLAB UNIT (SPAN A & B)

PROJECT NO. B-4216
ORANGE COUNTY
 STATION: 18+55.00 -L-

SHEET 5 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

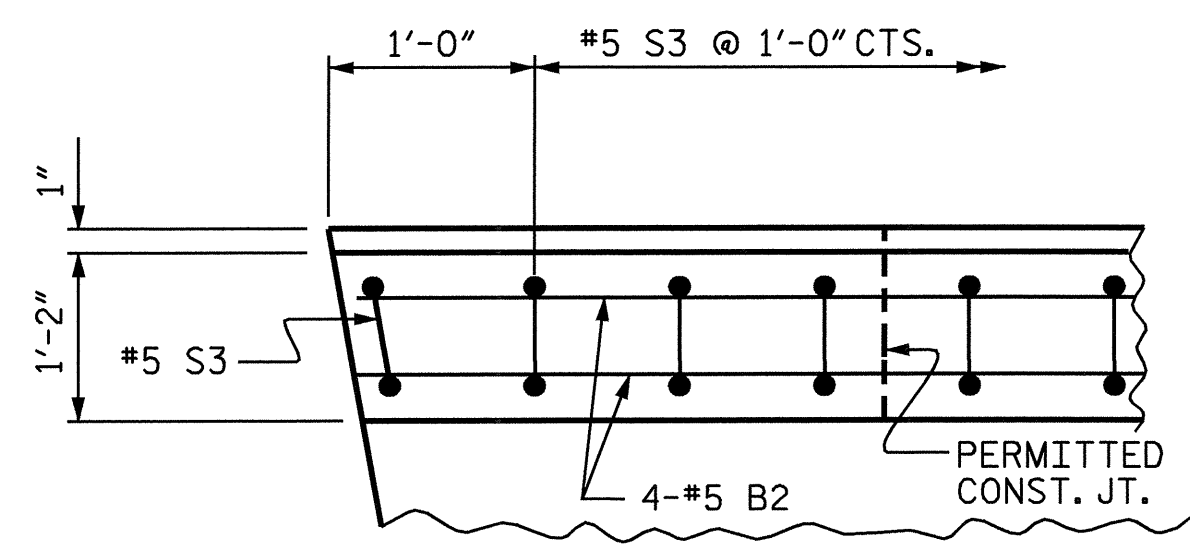
SUPERSTRUCTURE
 CORED SLAB UNIT
 DETAILS
 SPAN A & B



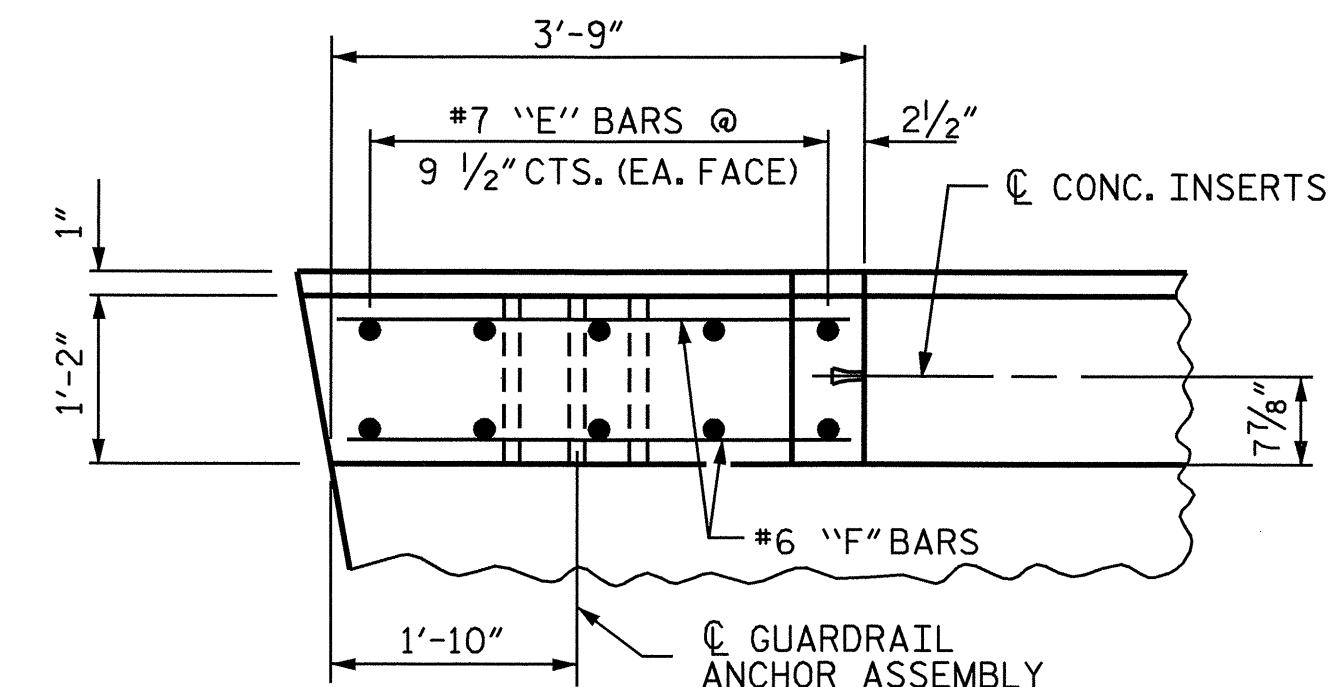
DRAWN BY : M. G. SHAIKH DATE : 04-18-07
 CHECKED BY : W. B. HILL DATE : 05-15-07

09-OCT-2009 10:37
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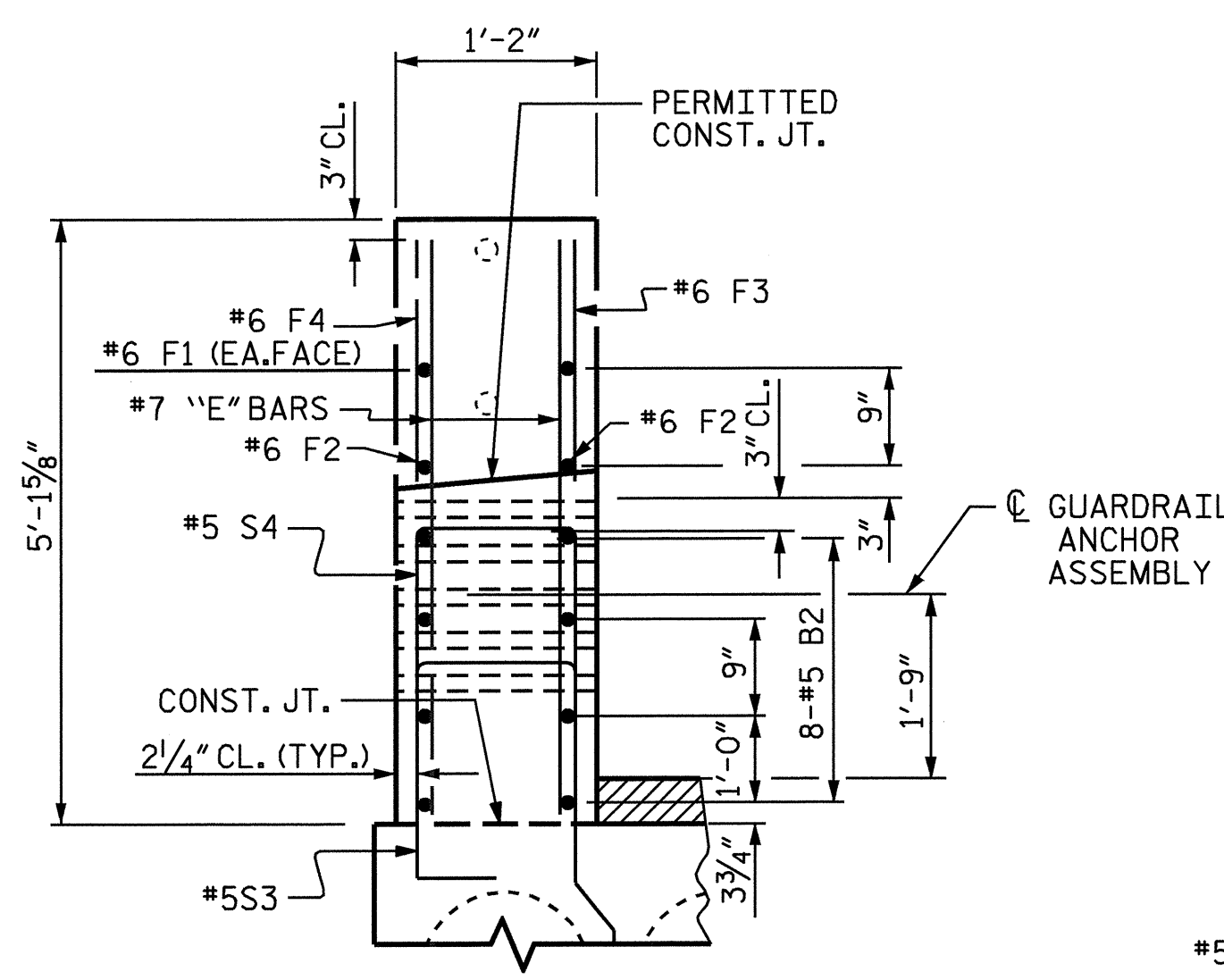
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
2			4			24



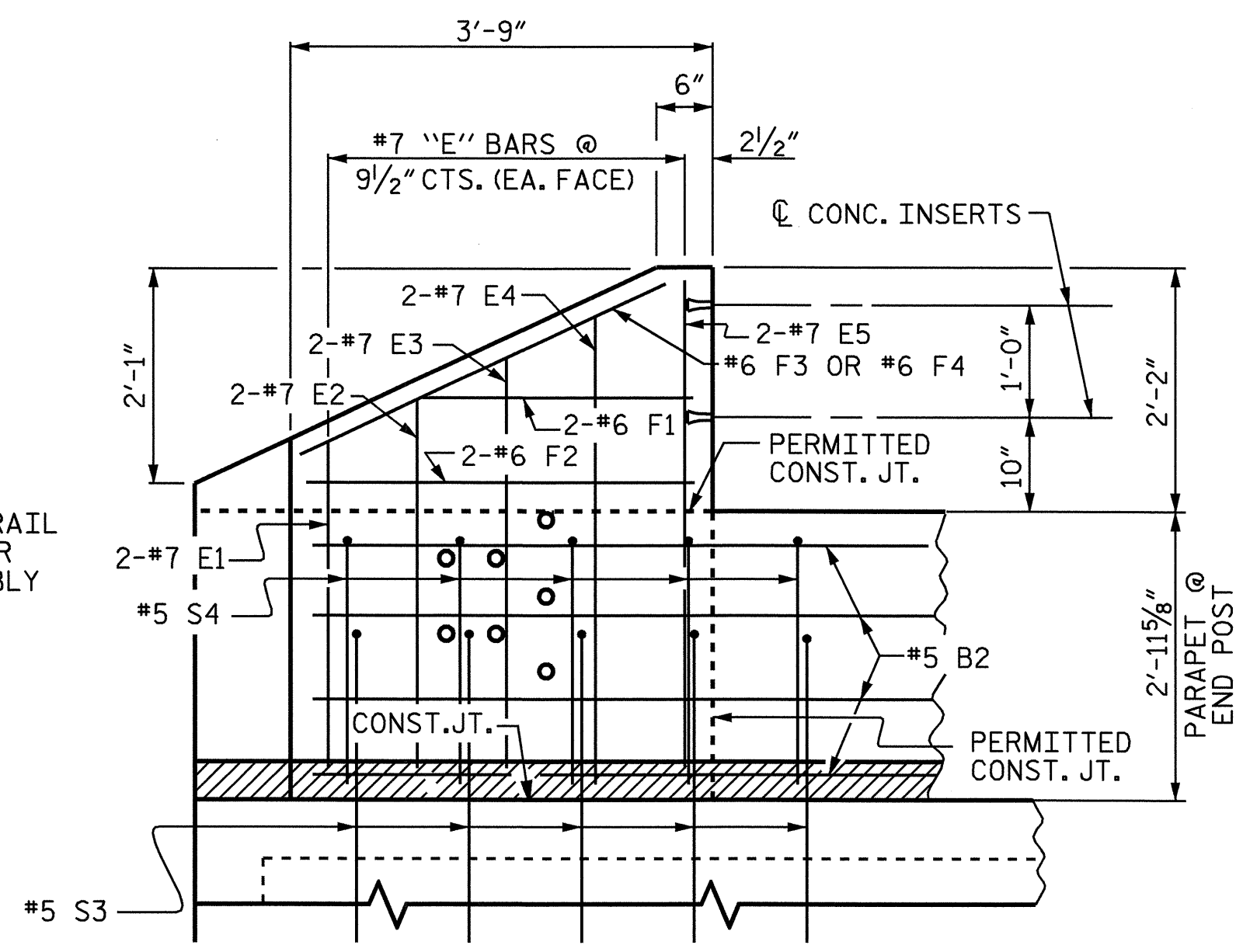
PLAN OF PARAPET



PLAN OF END POST

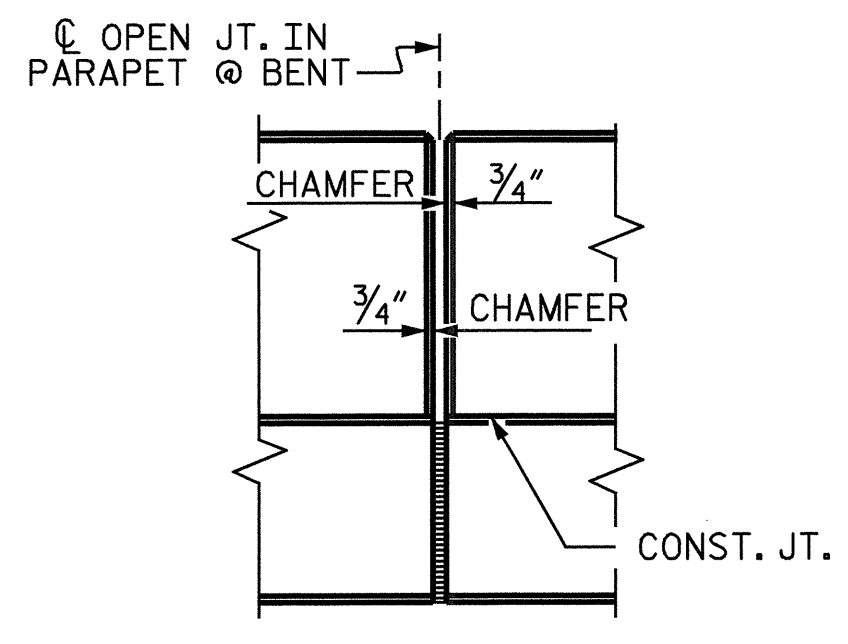


END VIEW

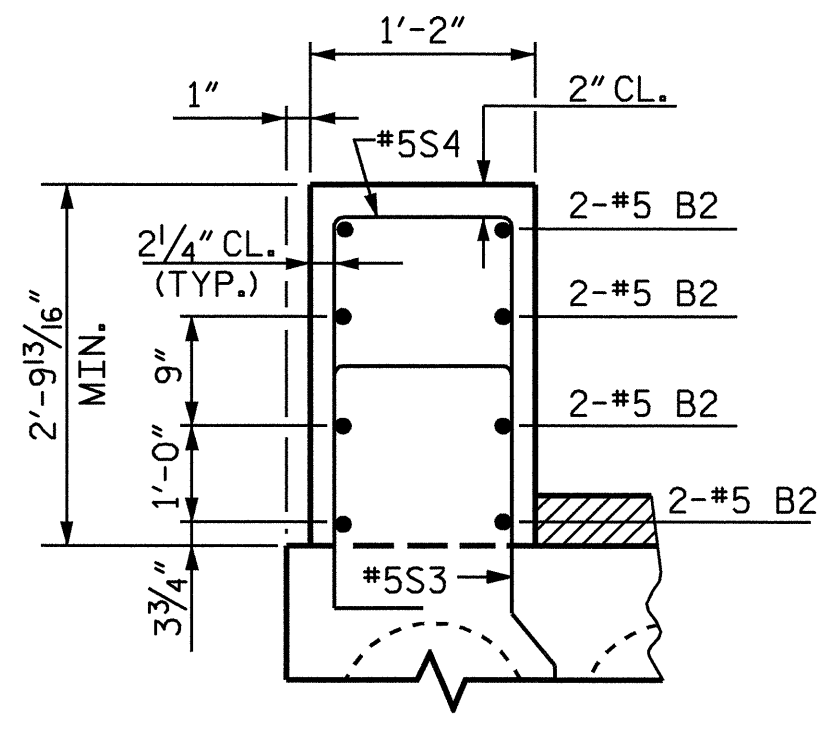


ELEVATION

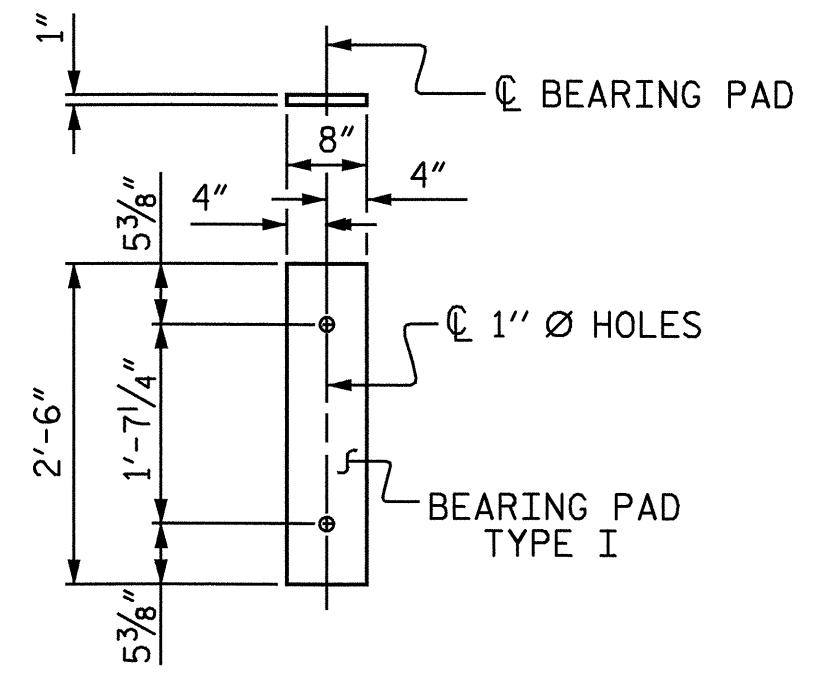
PARAPET AND END POST FOR TWO BAR METAL RAIL



ELEVATION AT BENT



SECTION THRU PARAPET (@ MID SPAN)



FIXED END (TYPE I - 52 REQ'D)
ELASTOMERIC BEARING DETAILS

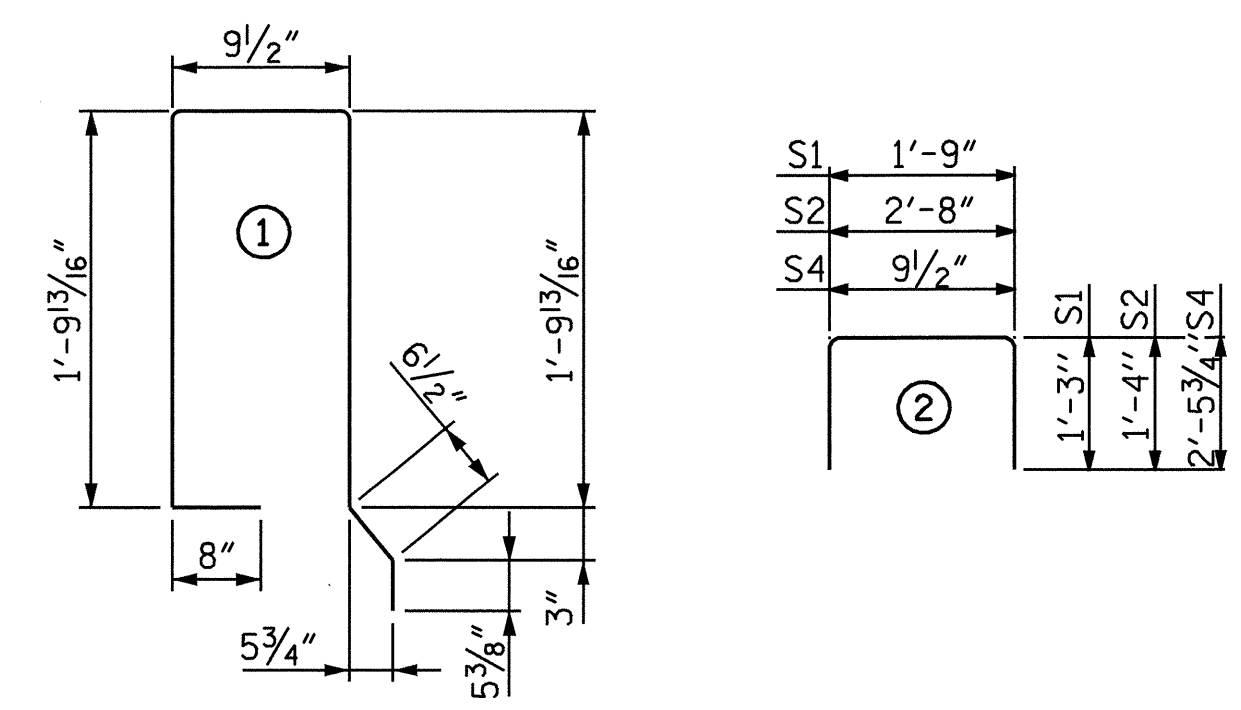
PARAPET DETAILS

GRADE 270 STRANDS	
AREA (SQUARE INCHES)	0.6" Ø L.R.
ULTIMATE STRENGTH (LBS. PER STRAND)	58,600
APPLIED PRESTRESS (LBS. PER STRAND)	43,950

CORED SLABS REQUIRED					
	SPAN A		SPAN B		TOTAL LENGTH
	NUMBER	LENGTH	NUMBER	LENGTH	
EXTERIOR C.S.	2	48'-9 1/2"	2	48'-9 1/2"	195'-2"
INTERIOR C.S.	11	48'-9 1/2"	11	48'-9 1/2"	1073'-5"
TOTAL	13		13		1268'-7"

DEAD LOAD DEFLECTION AND CAMBER	
CAMBER (SLAB ALONE IN PLACE)	2 1/16"
DEFLECTION DUE TO CONCRETE OVERLAY	1/4"
FINAL CAMBER	1 13/16"

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL FOR ONE CORED SLAB SECTION

BAR NUMBER	SIZE	TYPE	EXTERIOR UNIT LENGTH	EXTERIOR UNIT WEIGHT	INTERIOR UNIT LENGTH	INTERIOR UNIT WEIGHT
B1	#4	STR	25'-2"	67	25'-2"	67
S1	#5	2	4'-3"	35	4'-3"	35
S2	#4	2	5'-4"	342	5'-4"	342
*S3	#5	1	6'-1"	317		
REINFORCING STEEL				444 LBS.		444 LBS.
* EPOXY COATED REINFORCING STEEL				317 LBS.		
5000 P.S.I. CONCRETE				7.0 CU. YDS.		7.0 CU. YDS.
0.6" Ø L.R. STRANDS				No. 16		No. 16

BILL OF MATERIAL FOR CONCRETE PARAPET AND END POSTS

BAR	BARS PER SPAN	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
*B2	64	64	#5	STR	13'-11"	1858
*E1	4	4	#7	STR	2'-11"	48
*E2	4	4	#7	STR	3'-5"	56
*E3	4	4	#7	STR	3'-11"	64
*E4	4	4	#7	STR	4'-5"	72
*E5	4	4	#7	STR	4'-9"	78
*F1	4	4	#6	STR	1'-10"	22
*F2	4	4	#6	STR	3'-0"	36
*F3	2	2	#6	STR	3'-6"	21
*F4	2	2	#6	STR	3'-9"	23
*S4	50	50	#5	2	5'-9"	600
* EPOXY COATED REINFORCING STEEL					LBS.	2878
CLASS AA CONCRETE					CU.YDS.	25.9
1'-2" X 2'-9 13/16" CONCRETE PARAPET					LIN. FT.	195.431

REINFORCING BAR SCHEDULE FOR CONCRETE WEARING SURFACE

BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
*A1	386	#3	STR	19'-4"	2806
*B3	292	#3	STR	25'-7"	2809
*B4	72	#4	STR	20'-0"	962
* EPOXY COATED REINFORCING STEEL					6577 LBS.

NOTES

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW RELAXATION GRADE 270 STRANDS AND SHALL CONFORM TO AASHTO M203 EXCEPT FOR SAMPLING REQUIREMENTS WHICH SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ALL REINFORCING STEEL CAST WITH THE CORED SLAB SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE CORED SLABS.

RECESSES FOR TRANSVERSE STRANDS SHALL BE GROUTED AFTER THE TENSIONING OF THE STRANDS.

THE 2 1/2" Ø DOWEL HOLES AT FIXED ENDS OF SLAB SECTIONS SHALL BE FILLED WITH NON-SHRINK GROUT.

WHEN CORED SLABS ARE CAST, A POSITIVE HOLD-DOWN SYSTEM SHALL BE EMPLOYED TO PREVENT VOIDS FROM RISING OR MOVING SIDEWAYS. THIS SYSTEM SHALL BE DESIGNED TO BE LEFT IN PLACE UNTIL THE CONCRETE HAS REACHED RELEASE STRENGTH. AT LEAST THREE WEEKS PRIOR TO CASTING CORED SLABS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW AND COMMENT, DETAILED DRAWINGS OF THE PROPOSED HOLD-DOWN SYSTEM. IN ADDITION TO STRUCTURAL DETAILS, LOCATION AND SPACING OF THE HOLD-DOWNS SHALL BE INDICATED.

WHEN A CONCRETE WEARING SURFACE IS DETAILED ON THE CORED SLAB BRIDGE TYPICAL SECTION, THE TOP SURFACE OF THE CORED SLAB UNITS SHALL HAVE A 3/8" RAKED FINISH.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE CORED SLAB UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 4000 PSI.

ALL REINFORCING STEEL IN PARAPET SHALL BE EPOXY COATED.

PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE CORED SLAB UNIT ENDS.

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

PLACEMENT OF THE CONCRETE WEARING SURFACE SHALL OCCUR AFTER CASTING THE CONCRETE PARAPET. THE COST OF THE #3 BARS CAST WITH THE CONCRETE WEARING SURFACE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONCRETE WEARING SURFACE. FOR CONCRETE WEARING SURFACE, SEE SPECIAL PROVISIONS.

THE 2" Ø BACKER ROD SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER. SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.

TRANSVERSE POST TENSIONING OF THE CORED SLAB SECTIONS SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS, EXCEPT THAT THE 0.6" Ø STRANDS SHALL BE TENSIONED TO 43,950 POUNDS.

FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.

CONCRETE WEARING SURFACE
SQ. FT. = 3533

GROOVING BRIDGE FLOORS	
BRIDGE	3231
APPROACH SLABS	1598
TOTAL	4829

PROJECT NO. B-4216
ORANGE COUNTY
STATION: 18+55.00 -L-

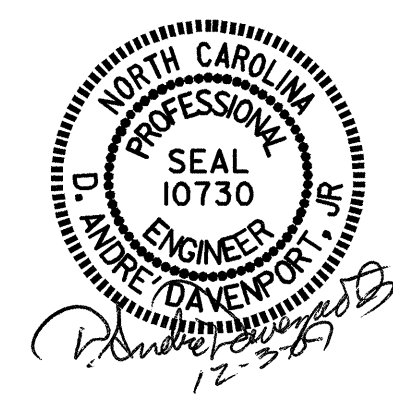
SHEET 6 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

3'-0" X 1'-9"
PRESTRESSED CONCRETE
CORED SLAB UNIT

REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. S-9
TOTAL SHEETS 24



ASSEMBLED BY : M. G. SHAIKH DATE : 04-19-07
CHECKED BY : W. B. HILL DATE : 05-15-07
DRAWN BY : WJH 4/89 REV. 7/10/01 RWW/LES
CHECKED BY : FCJ 5/89 REV. 5/7/03RRR RWW/JTE
REV. 5/1/06 TLA/GM

NOTES

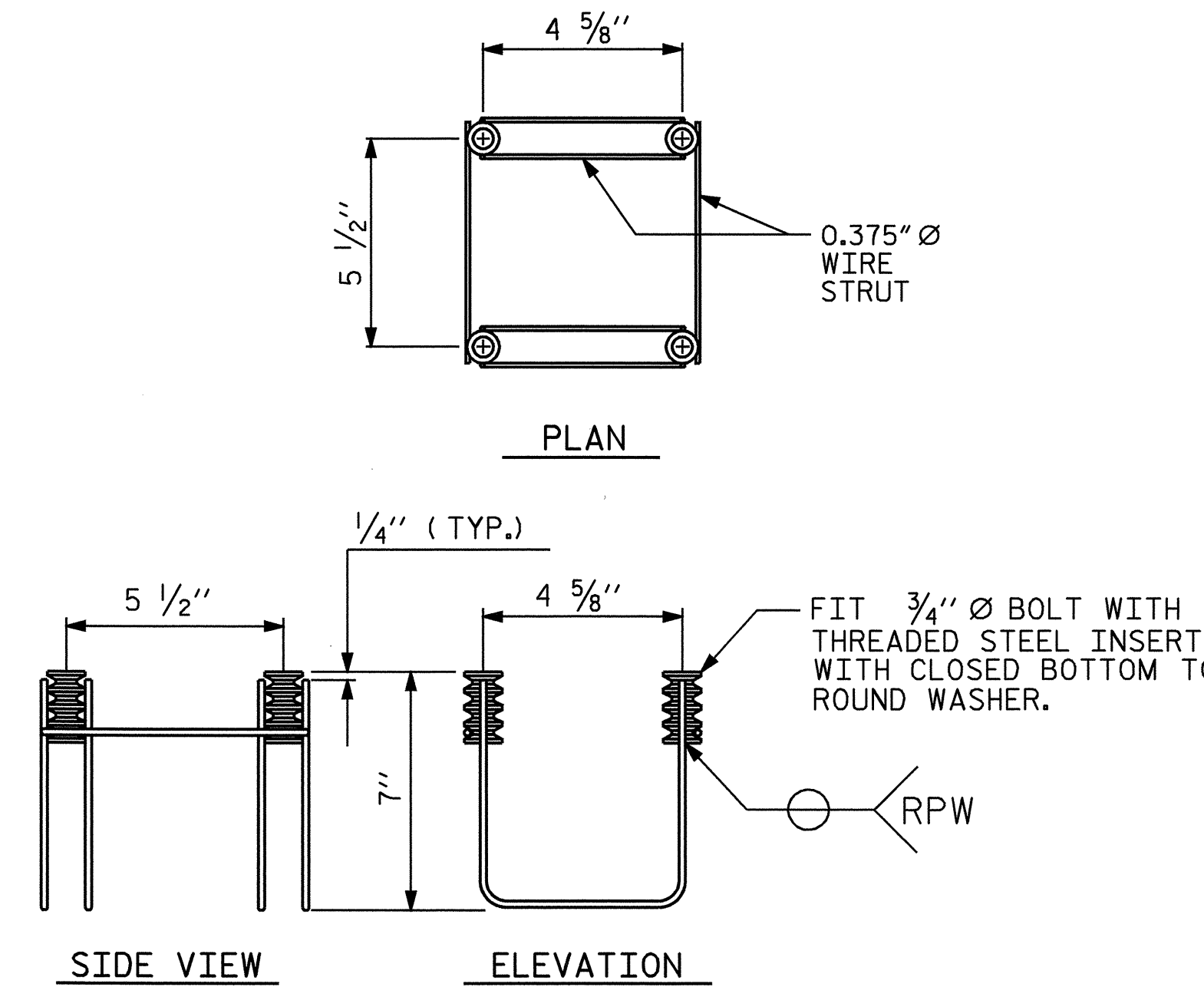
STRUCTURAL CONCRETE ANCHOR ASSEMBLY

THE STRUCTURAL CONCRETE ANCHOR ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS :

- A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 2" FOR 3/4" FERRULES.
- B. 4 - 3/4" Ø X 2 1/2" BOLTS WITH WASHERS. BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLTS AND WASHERS SHALL BE ANODIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 3/4" Ø X 2 1/2" ANODIZED BOLTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.
- C. WIRE STRUT SHOWN IN THE CONCRETE ANCHOR ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI. AS AN OPTION, A 7/16" Ø WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.
- D. THE METAL RAIL ANCHOR ASSEMBLIES TO BE HOT DIPPED ANODIZED TO CONFORM TO REQUIREMENTS OF AASHTO M111.
- E. THE COST OF THE METAL RAIL ANCHOR ASSEMBLY WITH BOLTS AND WASHERS COMPLETE IN PLACE SHALL BE INCLUDED IN THE PRICE BID FOR LINEAR FEET OF METAL RAIL.
- F. BOLTS TO BE TIGHTENED ONE-HALF TURN WITH A WRENCH FROM A FINGER-TIGHT POSITION.

THE CONTRACTOR MAY USE ADHESIVELY ANCHORED ANCHOR BOLTS IN PLACE OF THE METAL RAIL ANCHOR ASSEMBLY. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 3/4" Ø BOLT IS 10 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE SPECIAL PROVISIONS.

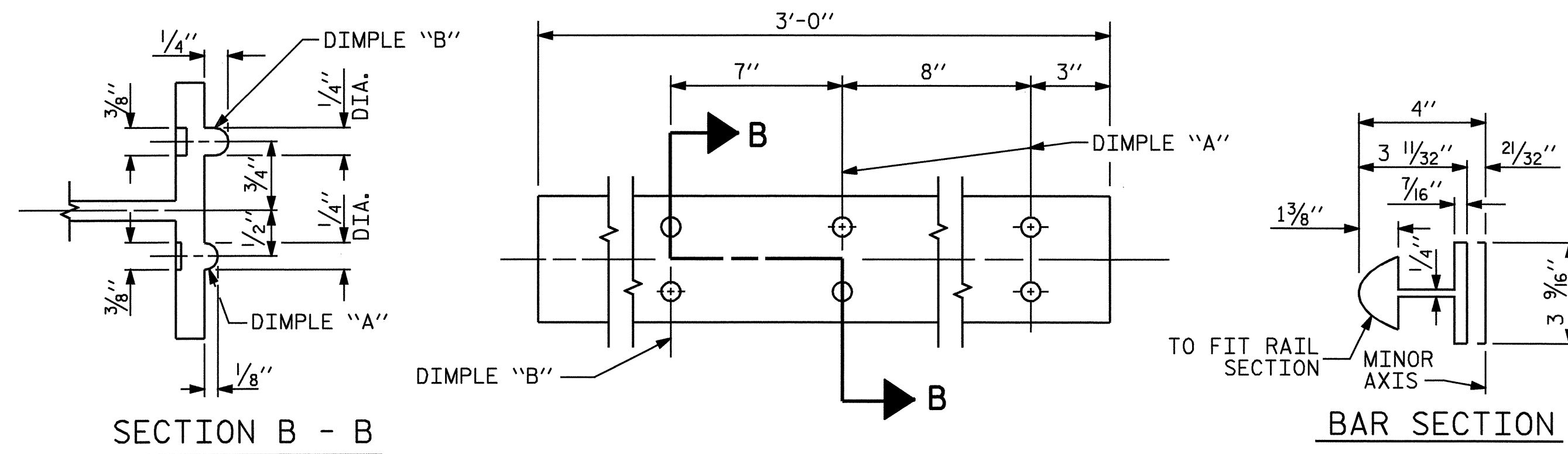
WHEN ADHESIVELY ANCHORED ANCHOR BOLTS ARE USED, BOLTS SHALL MEET THE REQUIREMENTS OF ASTM F593 ALLOY 304 STAINLESS STEEL WITH MINIMUM 75,000 PSI ULTIMATE STRENGTH. NUTS SHALL MEET THE REQUIREMENTS OF ASTM F594 ALLOY 304 STAINLESS STEEL AND WASHERS SHALL MEET THE REQUIREMENTS OF ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS STEEL.



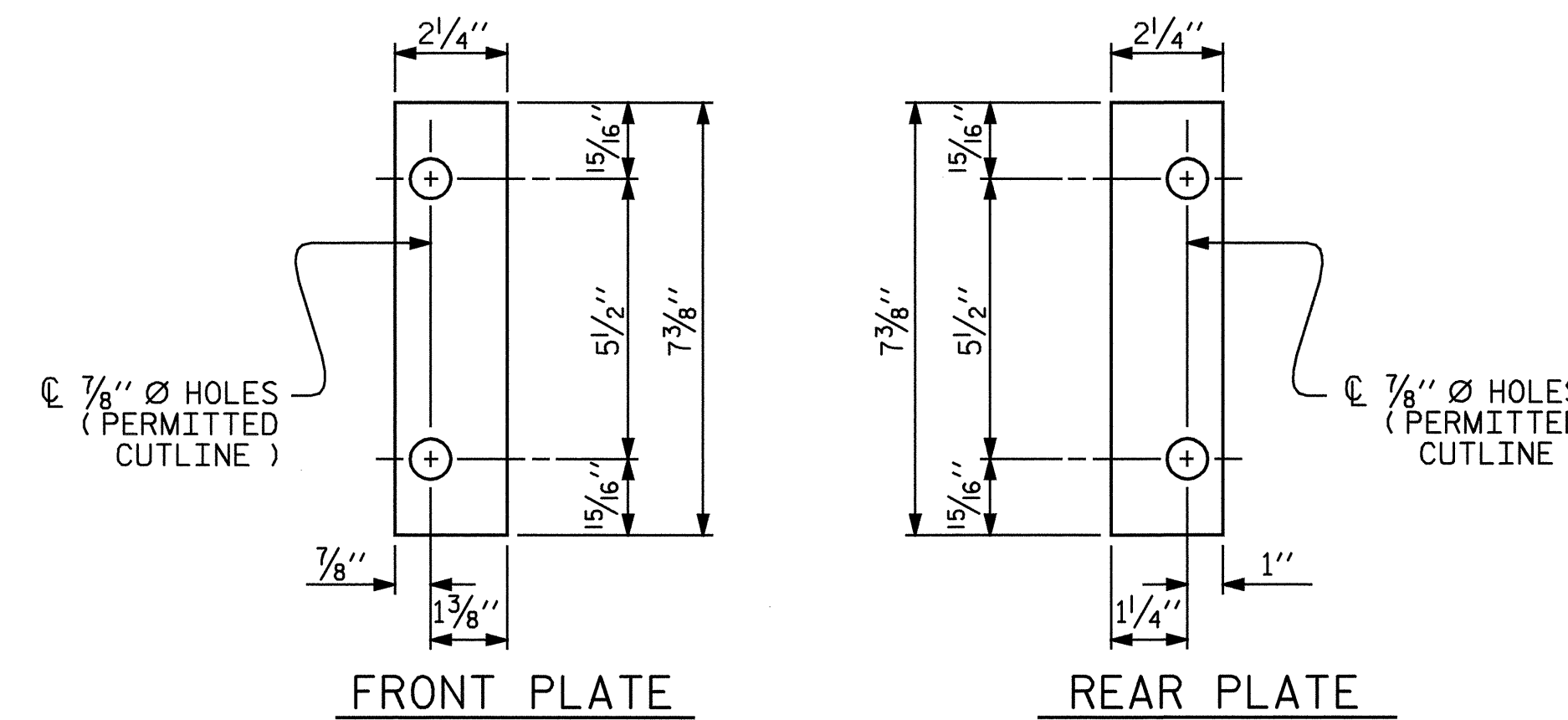
MINIMUM LENGTH OF THREADS IN INSERT (FERRULE) : 1 3/4"

4-BOLT METAL RAIL ANCHOR ASSEMBLY

(32 ASSEMBLIES REQUIRED)

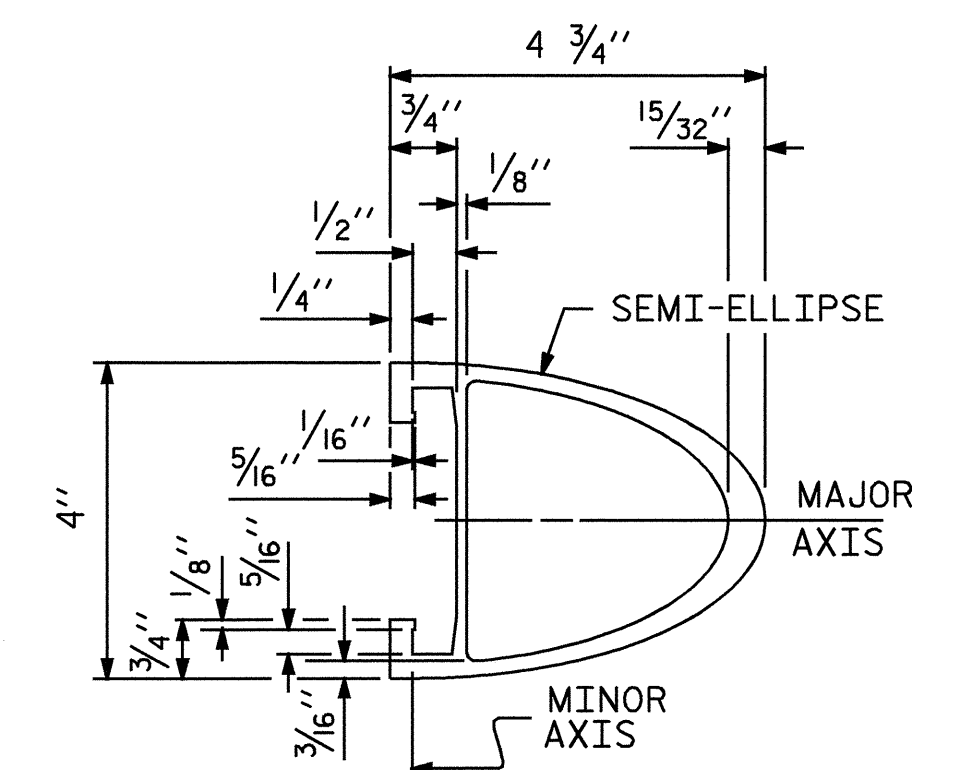


EXPANSION BAR DETAILS

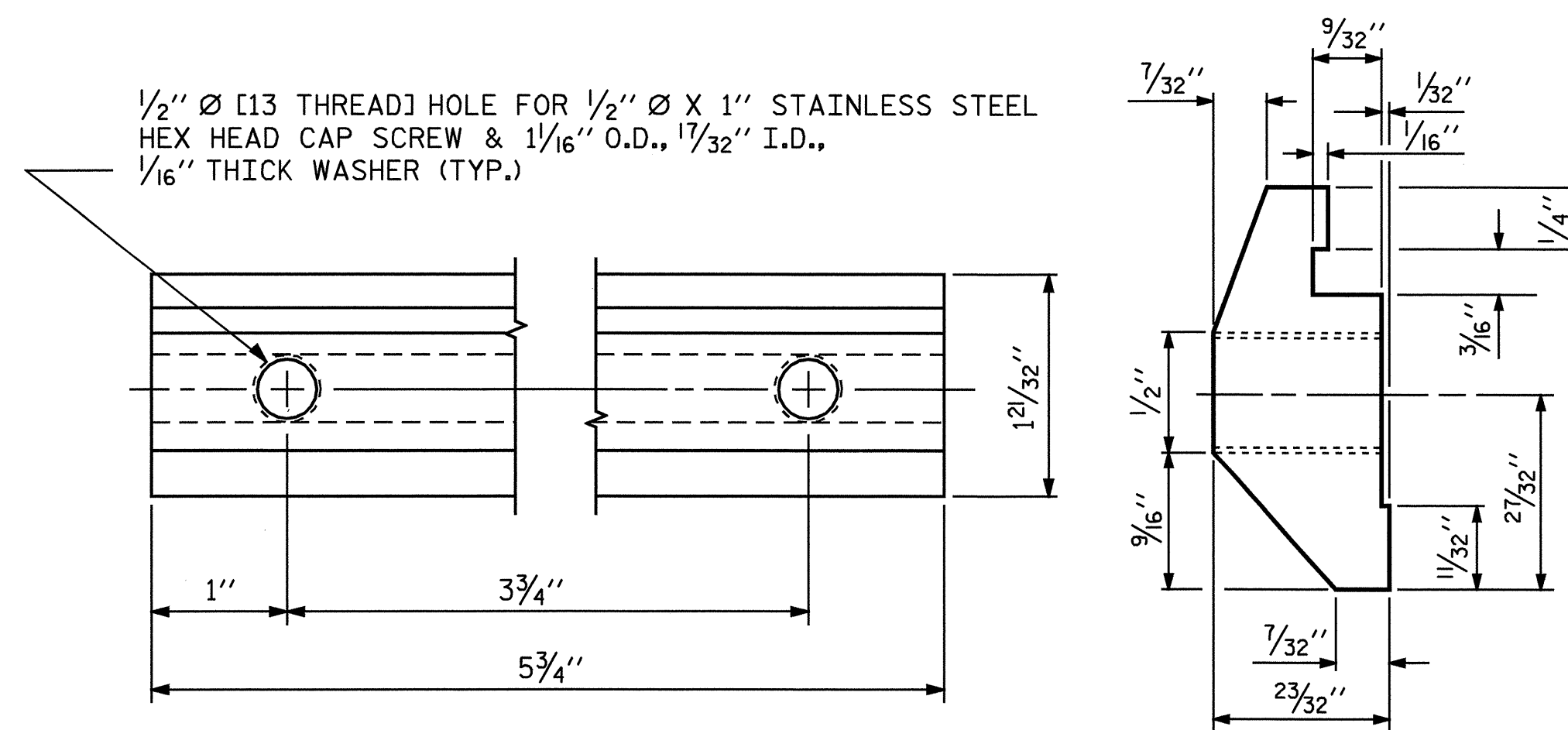


SHIM DETAILS

NOTE : SHIMS MAY BE CUT ALONG PERMITTED CUTLINE OR SLOTTED TO EDGE OF PLATE TO FACILITATE PLACEMENT.

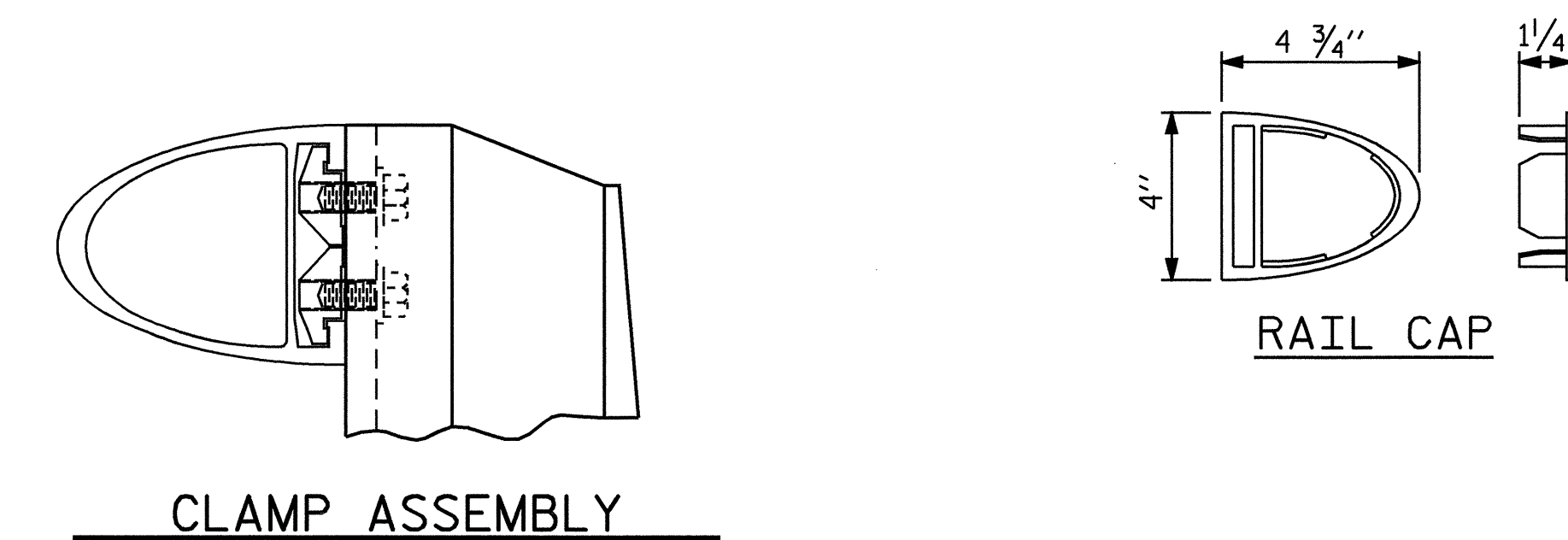


RAIL SECTION



CLAMP BAR DETAIL

(4 REQUIRED PER POST)



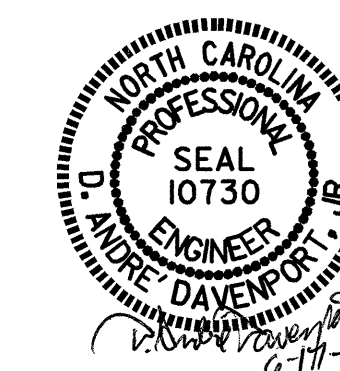
CLAMP ASSEMBLY

RAIL CAP

PROJECT NO. B-4216
 ORANGE COUNTY
 STATION: 18+55.00 -L-

SHEET 2 OF 2

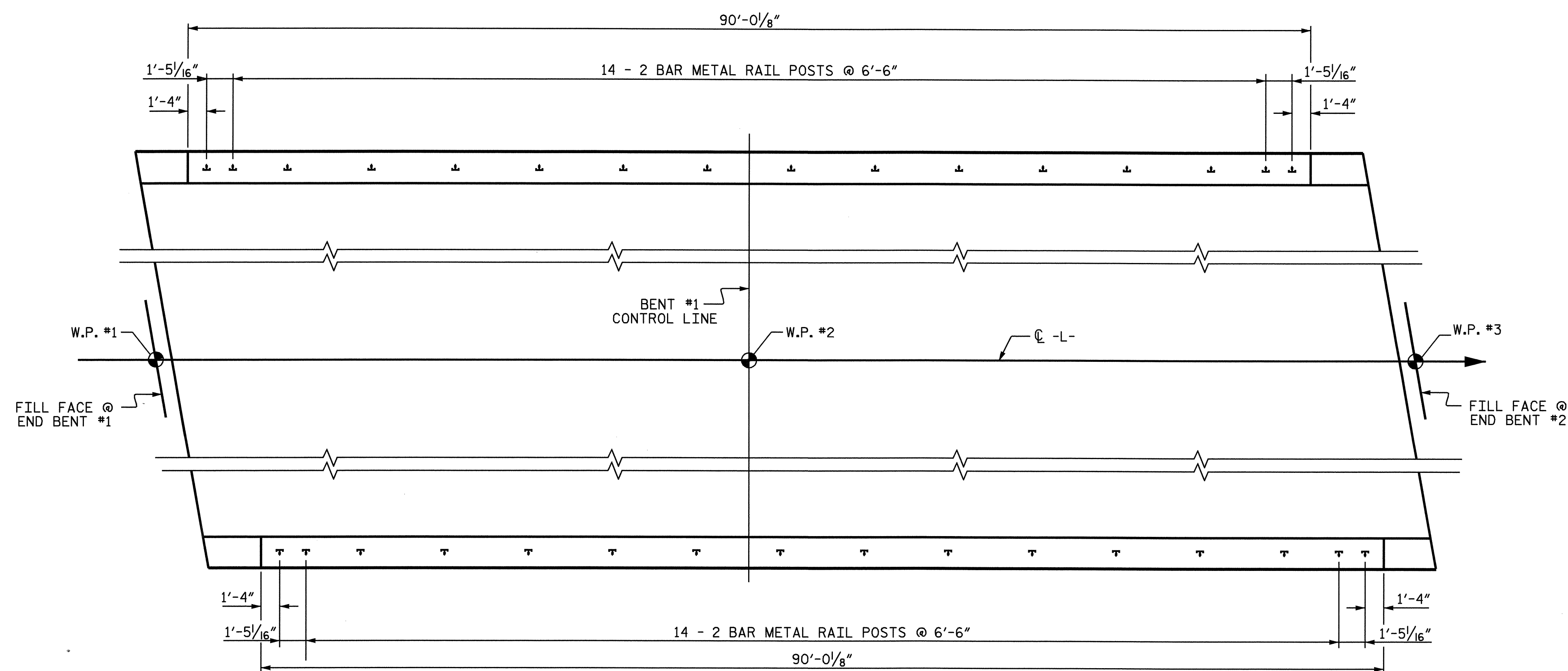
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 2 BAR METAL RAIL



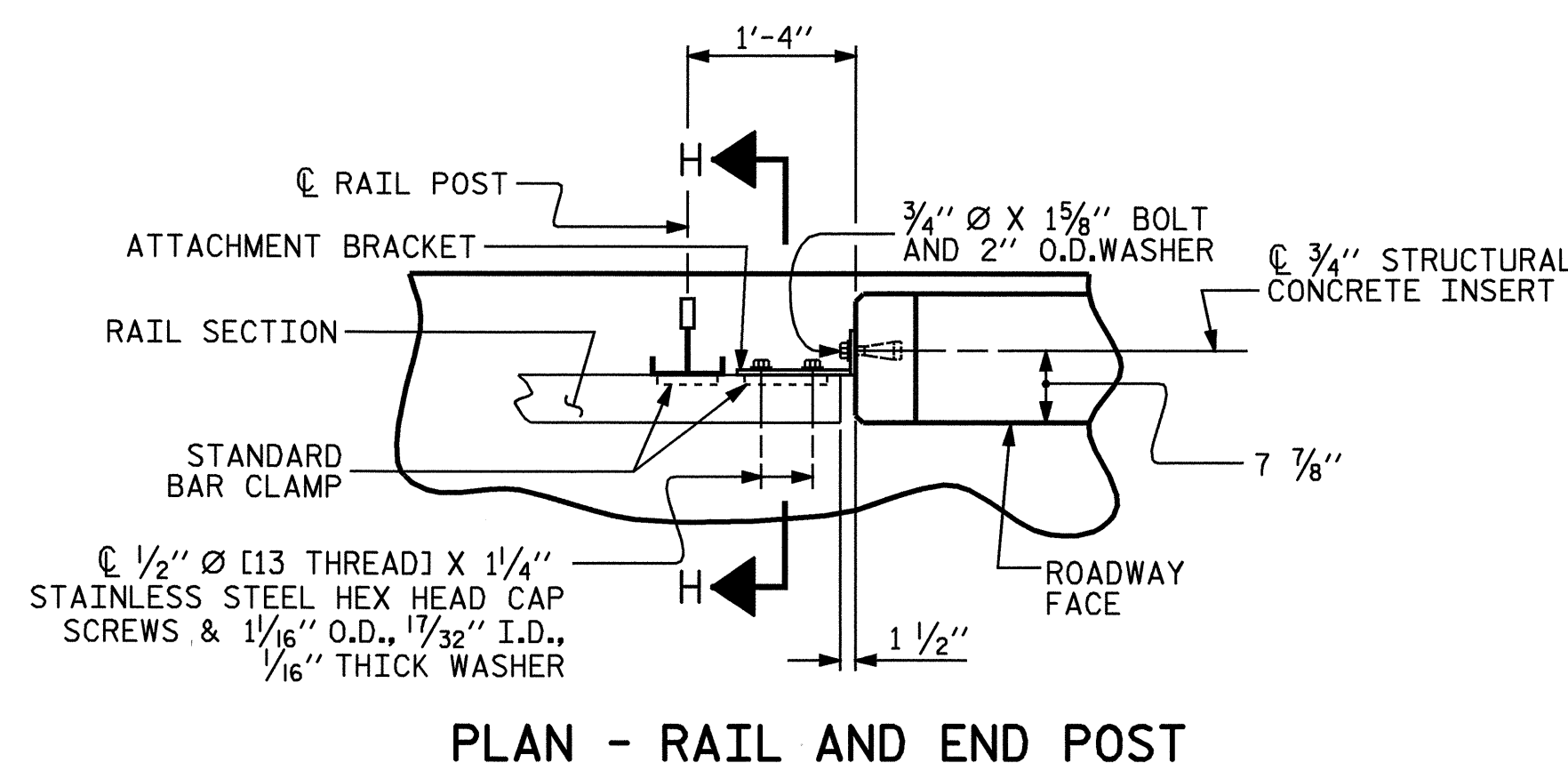
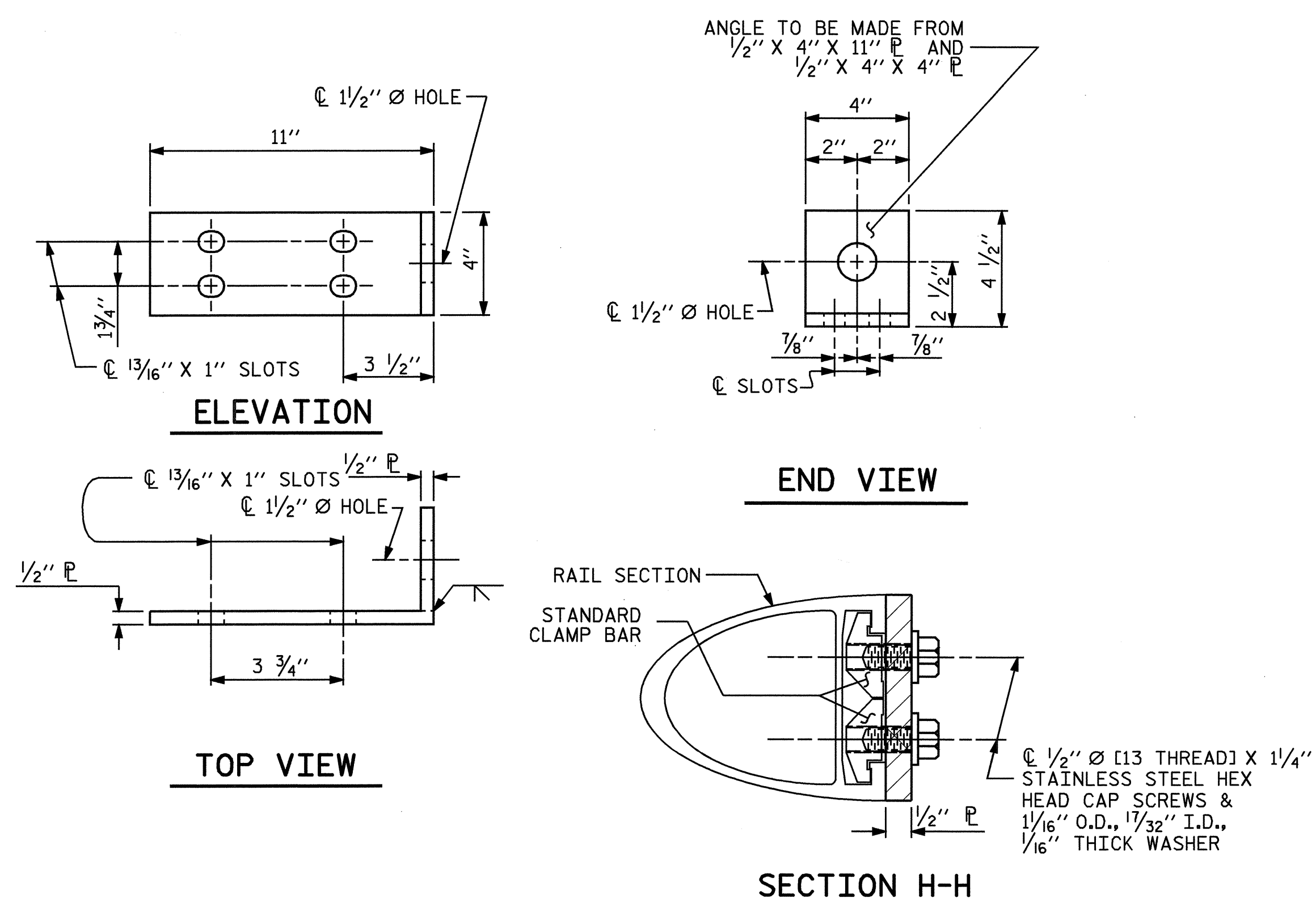
ASSEMBLED BY : M. G. SHAIKH	DATE : 04-23-07
CHECKED BY : W. B. HILL	DATE : 05-15-07
DRAWN BY : EEM 6/94	REV. 2/6/97 EEM/RGW
CHECKED BY : RGW 6/94	REV. 8/16/99 MAB/LES
	REV. 5/7/03 RWW/JTE

REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. S-11
 TOTAL SHEETS 24



PLAN OF RAIL POST SPACINGS



PLAN - RAIL AND END POST

NOTES

STRUCTURAL CONCRETE INSERT

THE STRUCTURAL CONCRETE INSERT ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS:

- A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 1 1/2".
- B. 1 - 3/4" Ø X 1 5/8" BOLT WITH WASHER. BOLT SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLT AND WASHER SHALL BE ANODIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLT AND WASHER MAY BE USED AS AN ALTERNATE FOR THE 3/4" Ø X 1 5/8" ANODIZED BOLT AND WASHER. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)
- C. WIRE STRUT SHOWN IN THE CONCRETE INSERT ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI. AS AN OPTION, A 7/16" Ø WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.

NOTES

METAL RAIL TO END POST CONNECTION

THE METAL RAIL TO END POST CONNECTION SHALL CONSIST OF THE FOLLOWING COMPONENTS:

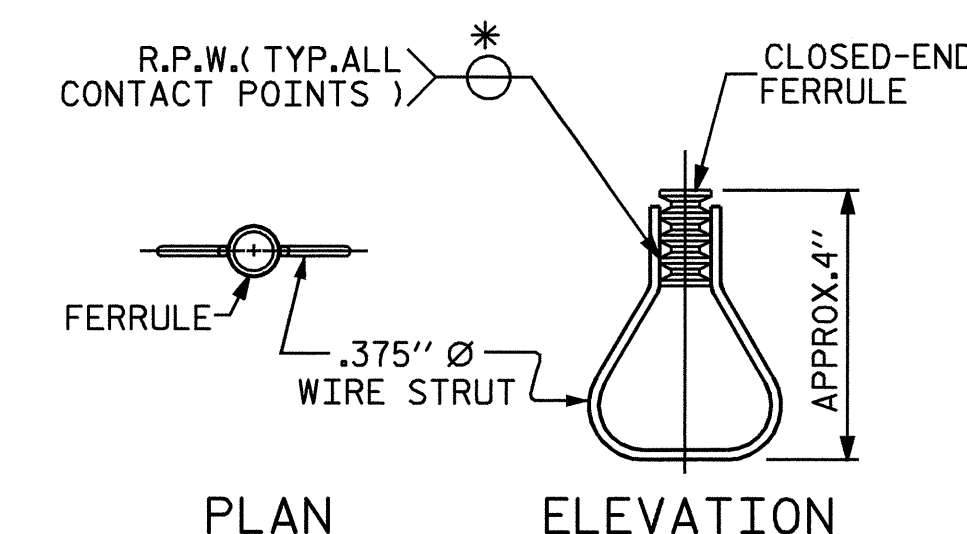
- A. 1/2" PLATES SHALL CONFORM TO AASHTO M270 GRADE 36 AND SHALL BE ANODIZED AFTER FABRICATION.
- B. 3/4" STRUCTURAL CONCRETE INSERT SHALL HAVE A WORKING LOAD SHEAR CAPACITY OF 4800 LBS. THE FERRULES SHALL ENGAGE A 3/4" Ø X 1 5/8" BOLT WITH 2" O.D. WASHER IN PLACE. THE 3/4" Ø X 1 5/8" BOLT SHALL HAVE N. C. THREADS.
- C. CAP SCREWS FOR RAIL ATTACHMENT TO ANGLE SHALL CONFORM TO THE REQUIREMENTS OF ASTM F593 ALLOY 305 STAINLESS STEEL. CAP SCREWS TO BE CENTERED IN SLOTS AT 60°F.
- D. STANDARD CLAMP BARS (SEE METAL RAIL SHEET).
- E. 1/2" Ø PIPE SLEEVES (IF REQUIRED) TO BE ANODIZED.

THE COST OF THE STANDARD CLAMP BARS AND CAP SCREWS USED IN THE METAL RAIL TO END POST CONNECTION SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR LINEAR FEET OF 2 BAR METAL RAILS.

THE 3/4" STRUCTURAL CONCRETE INSERT WITH BOLT SHALL BE ASSEMBLED IN THE SHOP.

THE COST OF THE 3/4" STRUCTURAL CONCRETE INSERT ASSEMBLY, AND THE 1/2" PLATES COMPLETE IN PLACE SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

THE CONTRACTOR, AT HIS OPTION, MAY USE AN ADHESIVE BONDING SYSTEM IN LIEU OF THE STRUCTURAL CONCRETE INSERT EMBEDDED IN THE END POST. IF THE ADHESIVE BONDING SYSTEM IS USED, THE 3/4" Ø X 1 5/8" BOLT WITH WASHER SHALL BE REPLACED WITH A 3/4" Ø X 6 1/2" BOLT AND 2" O.D. WASHER. ALL SPECIFICATIONS THAT APPLY TO THE 3/4" Ø X 1 5/8" BOLT SHALL APPLY TO THE 3/4" Ø X 6 1/2" BOLT. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.



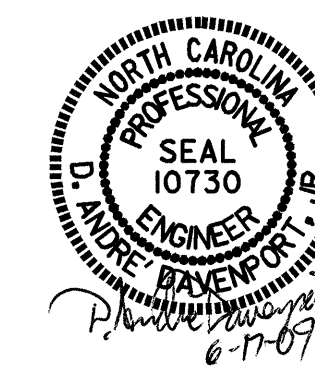
STRUCTURAL CONCRETE INSERT

* EACH WELDED ATTACHMENT OF WIRE TO FERRULE SHALL DEVELOP THE TENSILE STRENGTH OF THE WIRE.

PROJECT NO. B-4216
ORANGE COUNTY
 STATION: 18+55.00 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**RAIL POST SPACINGS
 AND
 END OF RAIL DETAILS**
 FOR TWO BAR METAL RAILS



ASSEMBLED BY : M. G. SHAIKH DATE : 04-23-07
 CHECKED BY : W. B. HILL DATE : 05-15-07
 DRAWN BY : FCJ 1/88 REV. 10/17/00 LES/RDR
 CHECKED BY : CRK 3/89 REV. 5/7/03 RWW/JTE
 REV. 5/1/06 TLA/GM

DETAILS FOR ATTACHING METAL RAIL TO END POST

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12
1			3			TOTAL SHEETS
2			4			24

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD DOWN PLATE AND 7 - 7/8" Ø BOLTS WITH NUTS AND WASHERS.

THE HOLD-DOWN PLATE SHALL CONFORM TO AASHTO M270 GRADE 36. AFTER FABRICATION, THE HOLD-DOWN PLATE SHALL BE HOT-DIP ANODIZED IN ACCORDANCE WITH AASHTO M111.

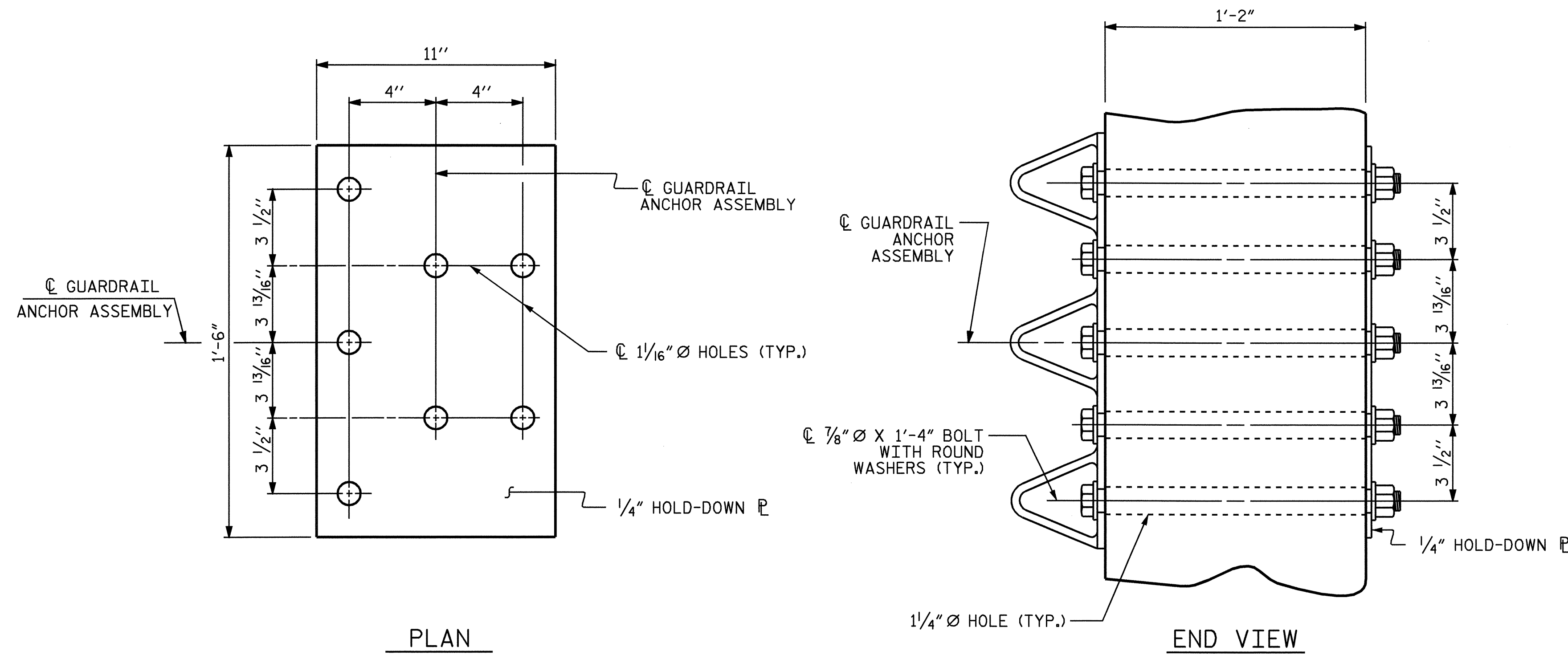
BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE ANODIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8" Ø ANODIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.

AFTER INSTALLATION, THE EXPOSED THREAD OF THE BOLT SHALL BE BURRED WITH A SHARP POINTED TOOL.

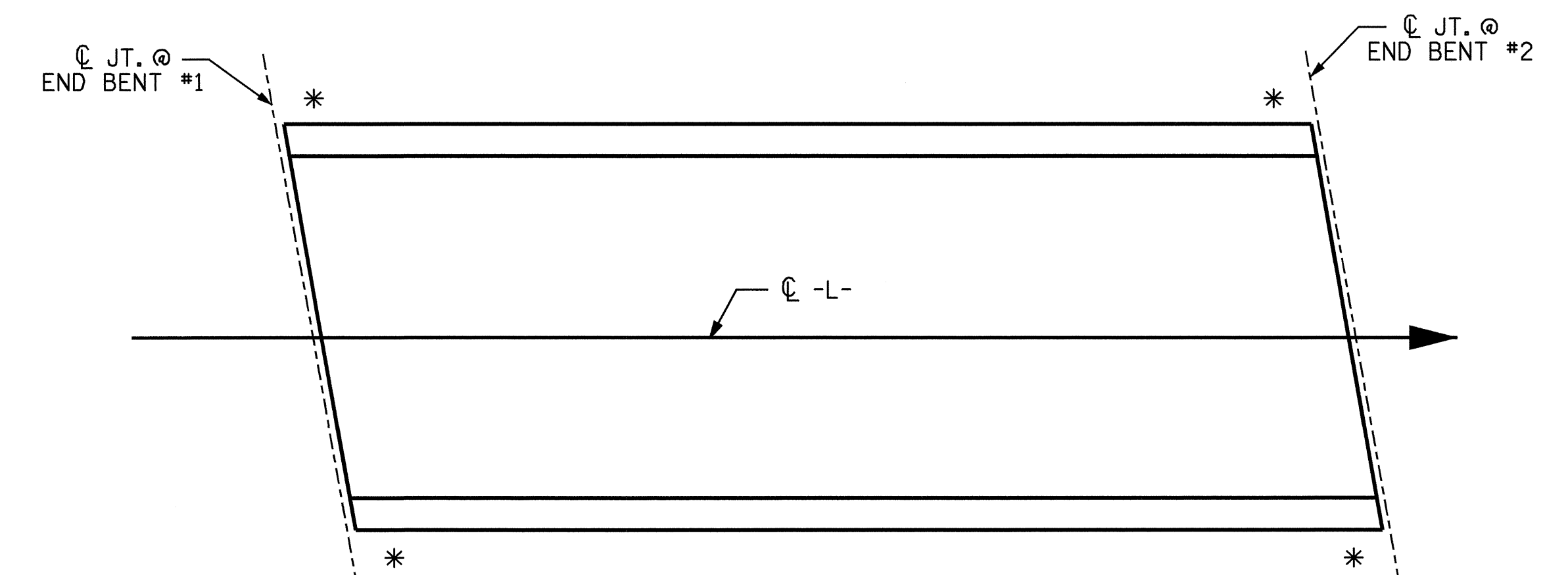
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLIES WITH BOLTS, NUTS AND WASHERS COMPLETE IN PLACE, SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE END POST TO CLEAR ASSEMBLY BOLTS.

THE 1 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.

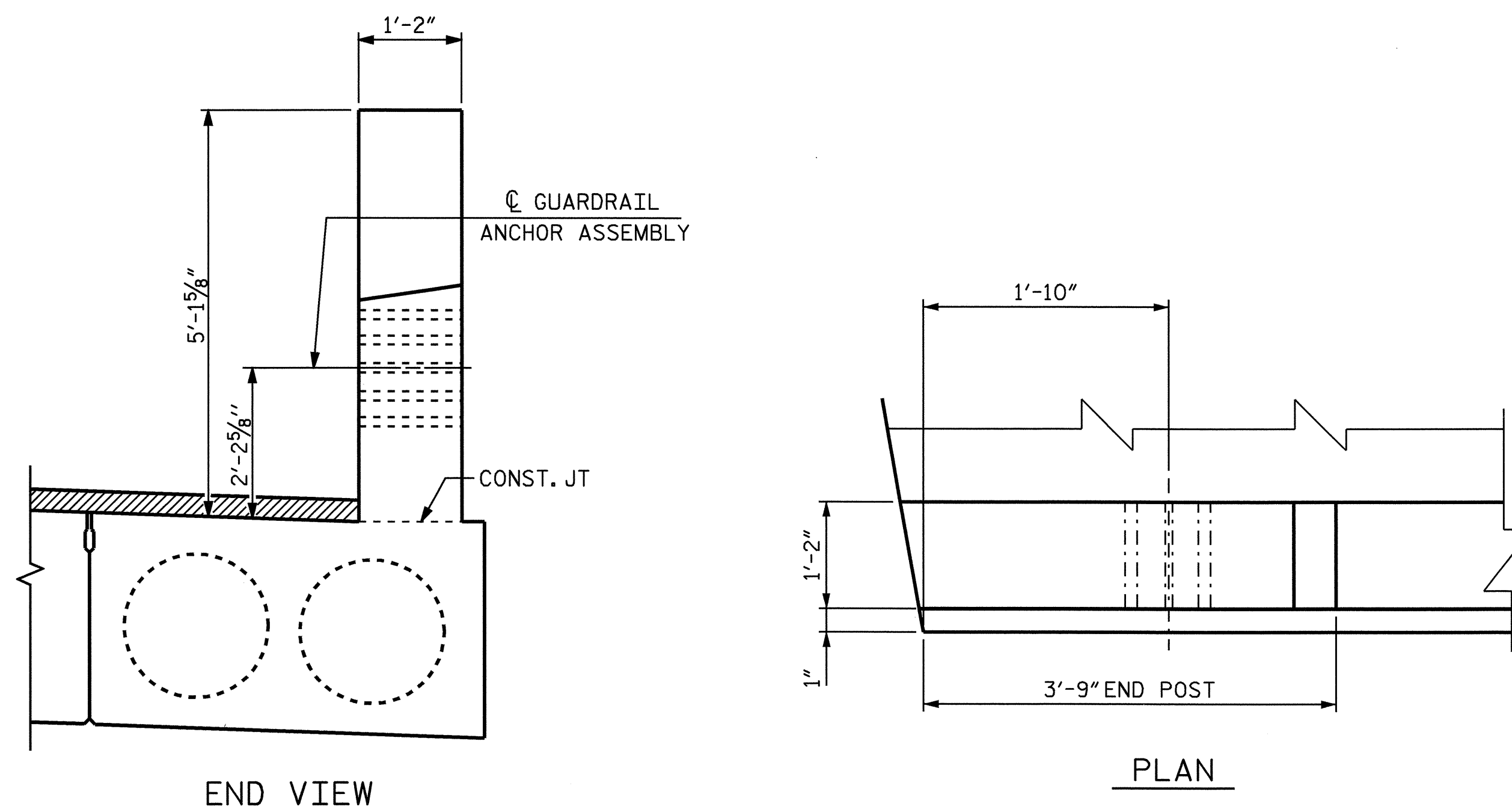


GUARDRAIL ANCHOR ASSEMBLY DETAILS



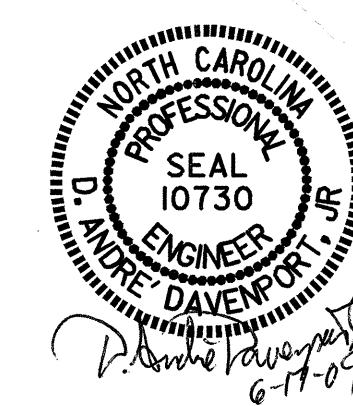
SKETCH SHOWING POINTS OF ATTACHMENT

* LOCATION OF GUARDRAIL ATTACHMENT



LOCATION OF GUARDRAIL ANCHOR AT END POST

PROJECT NO. B-4216
ORANGE COUNTY
 STATION: 18+55.00 -L-



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
GUARDRAIL ANCHORAGE DETAILS FOR METAL RAILS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-13
					TOTAL SHEETS 24

ASSEMBLED BY : M. G. SHAIKH	DATE : 04-23-07
CHECKED BY : W. B. HILL	DATE : 05-15-07
DRAWN BY : EEM 6/94	REV. 10/17/00 RWW/LES
CHECKED BY : RGW 6/94	REV. 5/7/03 RWW/JTE
	REV. 5/1/06 TLA/GM

NOTES

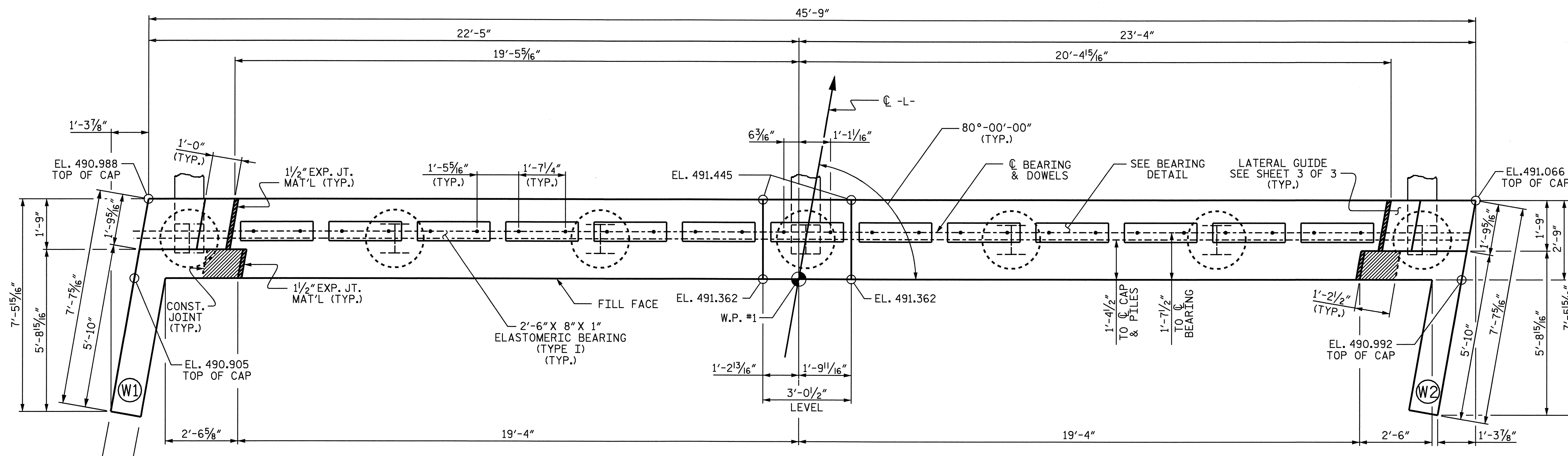
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR #6 DI DOWELS.

THE LATERAL GUIDE AT EACH END OF THE CAP IS NOT TO BE POURED UNTIL AFTER CORED SLAB UNITS ARE IN PLACE.

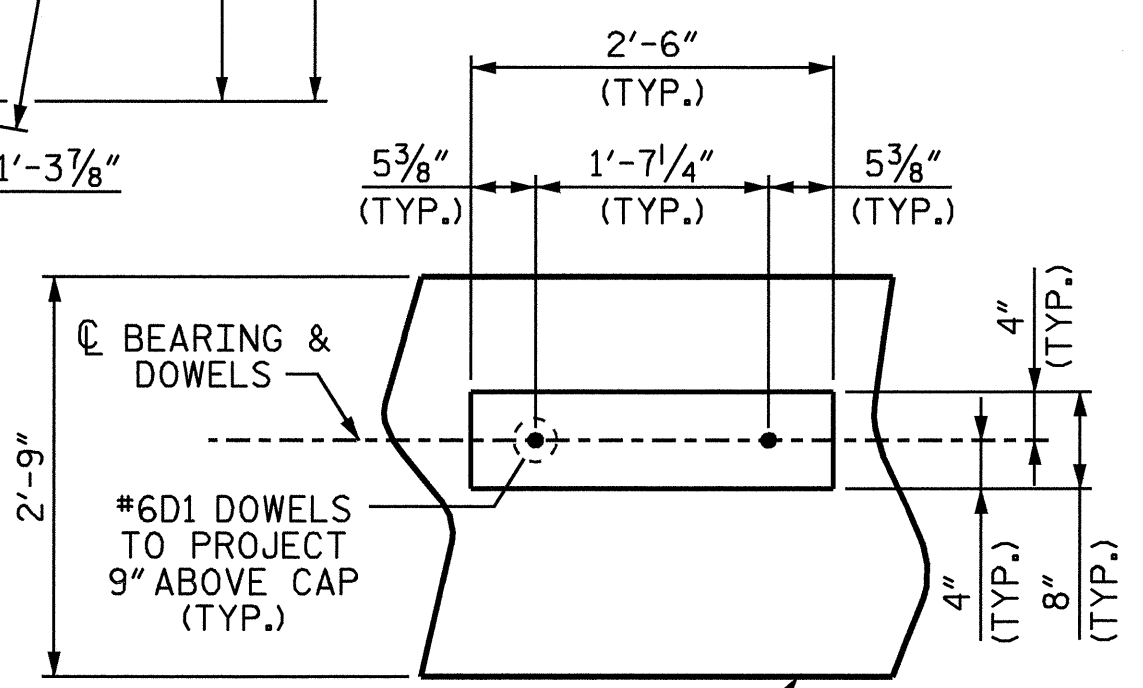
THE CONTRACTOR SHALL PROVIDE FOR INSTALLATION OF THE 4" DIAMETER DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS. SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.

THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE JOINT BETWEEN THE DECK AND THE APPROACH SLAB HAS BEEN SAWED AND THE PARAPET AND END POST ARE CAST IF SLIP FORMING IS USED.

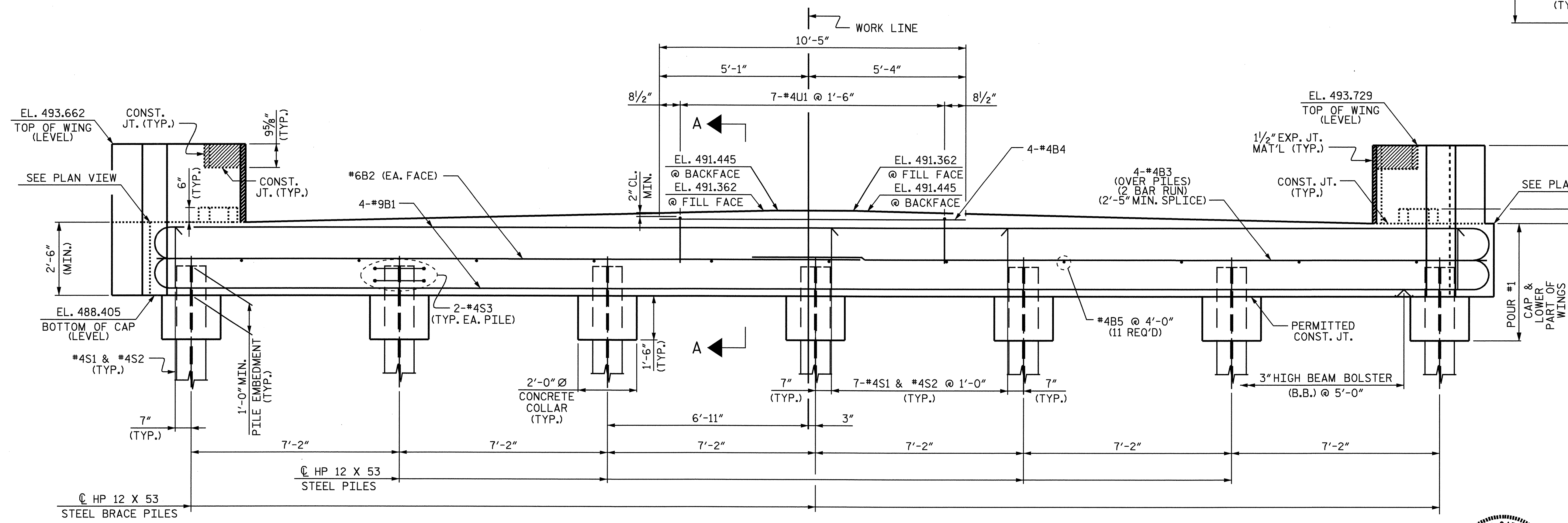
THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE CAP IS SLOPED BOTH TRANSVERSELY AND LONGITUDINALLY.



PLAN



BEARING DETAIL

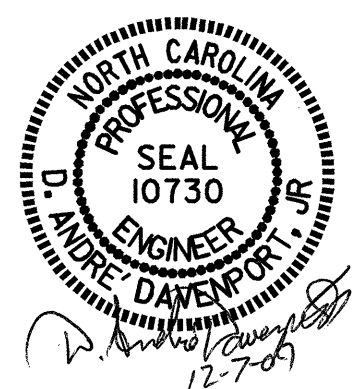


ELEVATION

PROJECT NO. B-4216
ORANGE COUNTY
 STATION: 18+55.00 -L-
 SHEET 1 OF 3

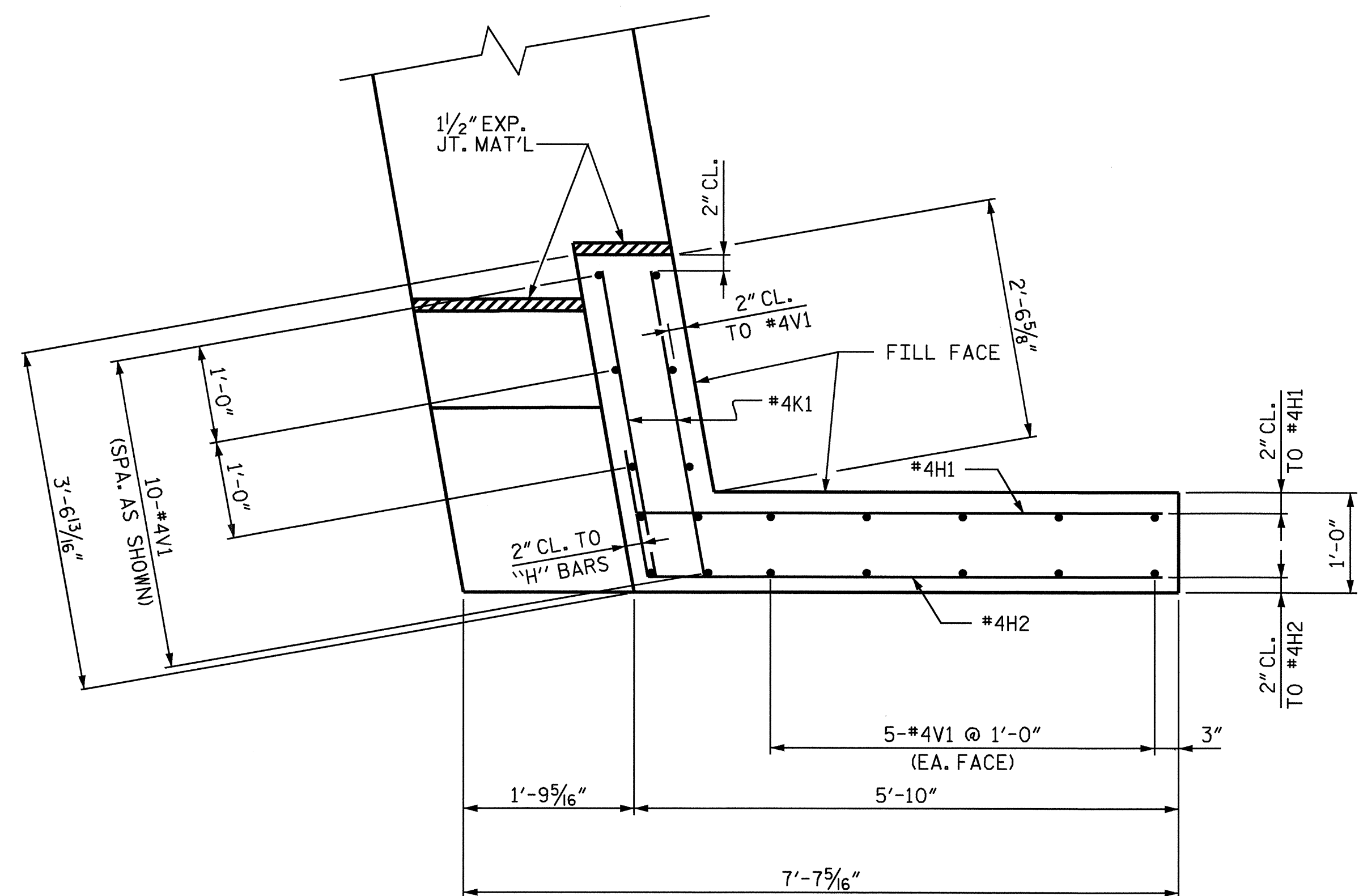
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUBSTRUCTURE
 END BENT #1**

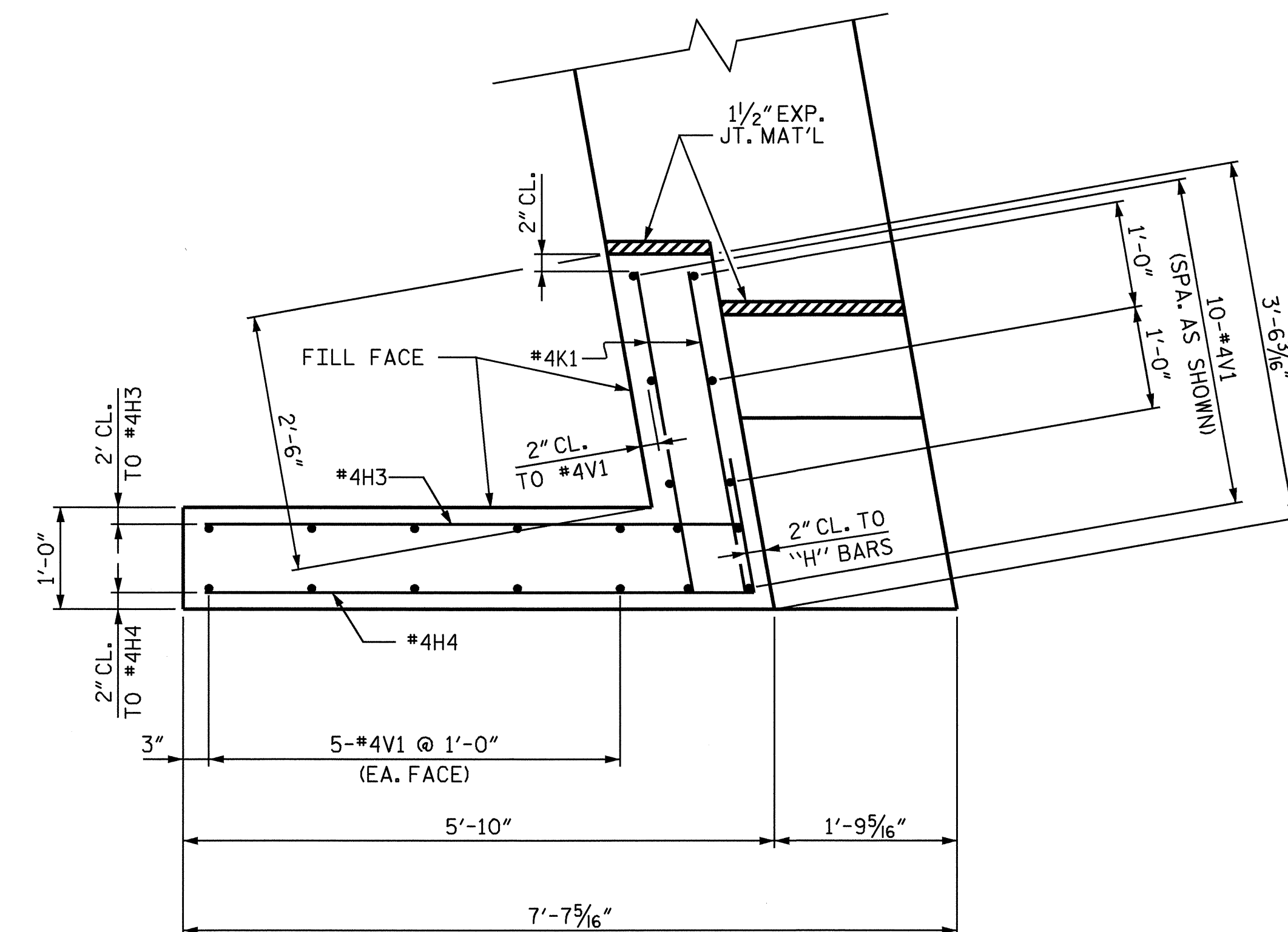


REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-14	
1			3			TOTAL SHEETS 24	
2			4				

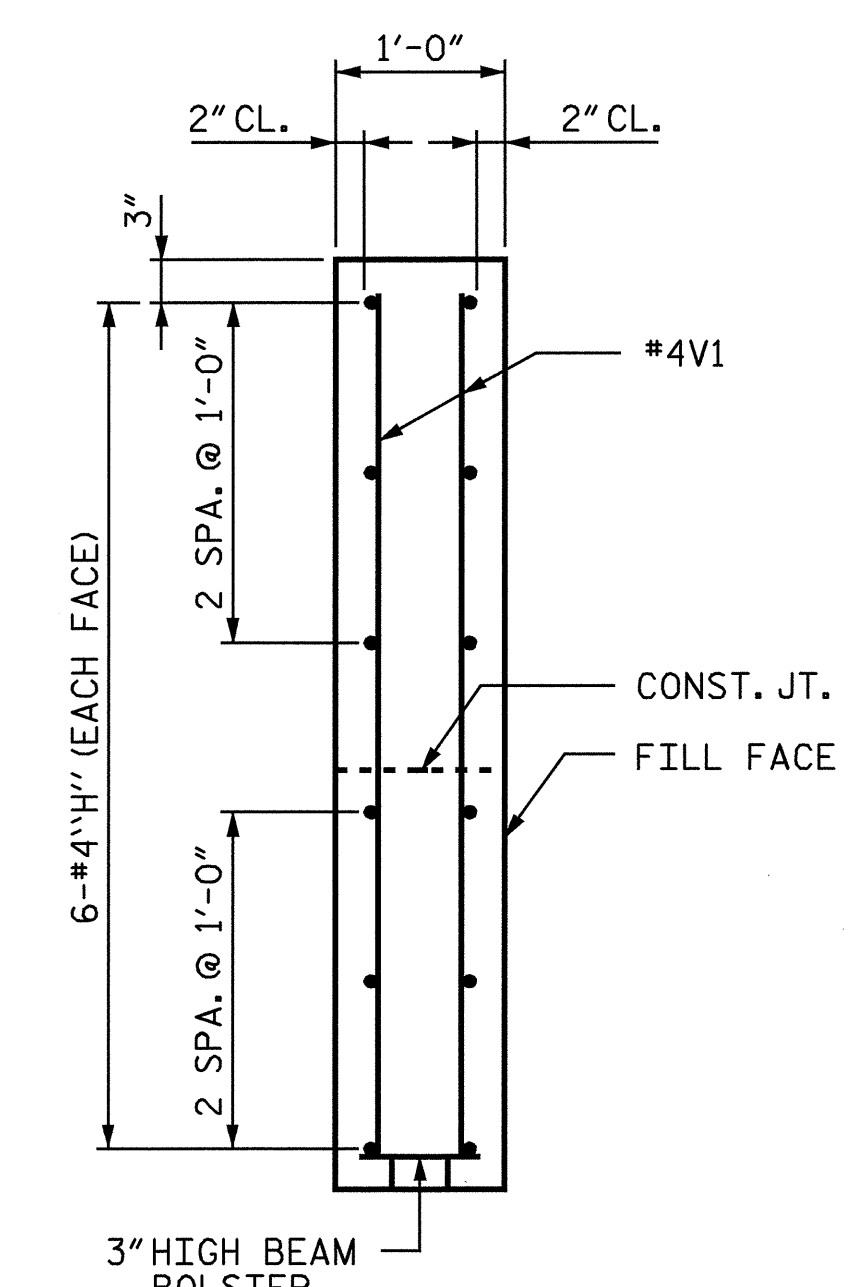
DRAWN BY: W. B. HILL DATE: 4/09
 CHECKED BY: M. G. SHAIKH DATE: 4/09



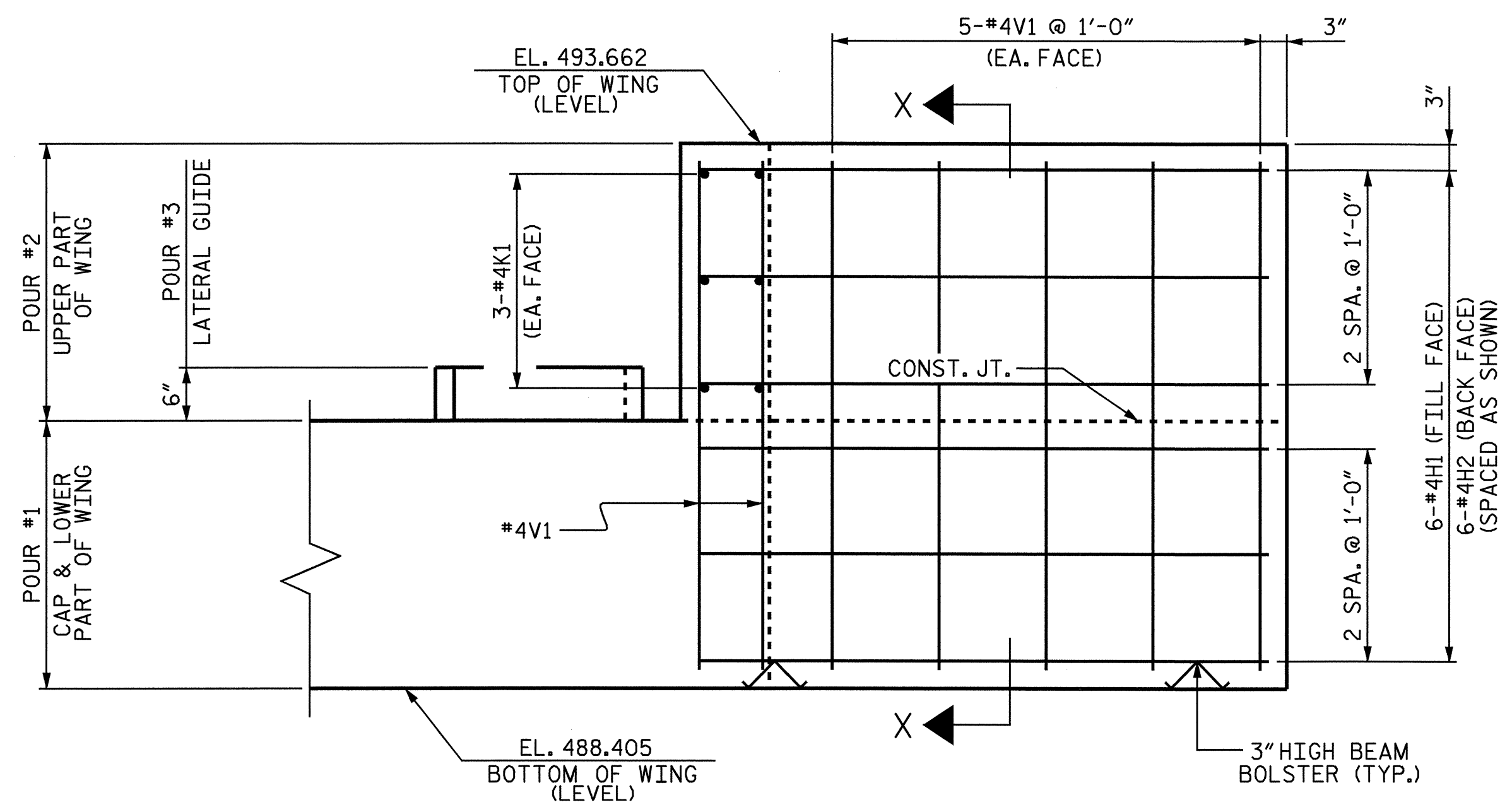
PLAN OF LEFT WING (W1)



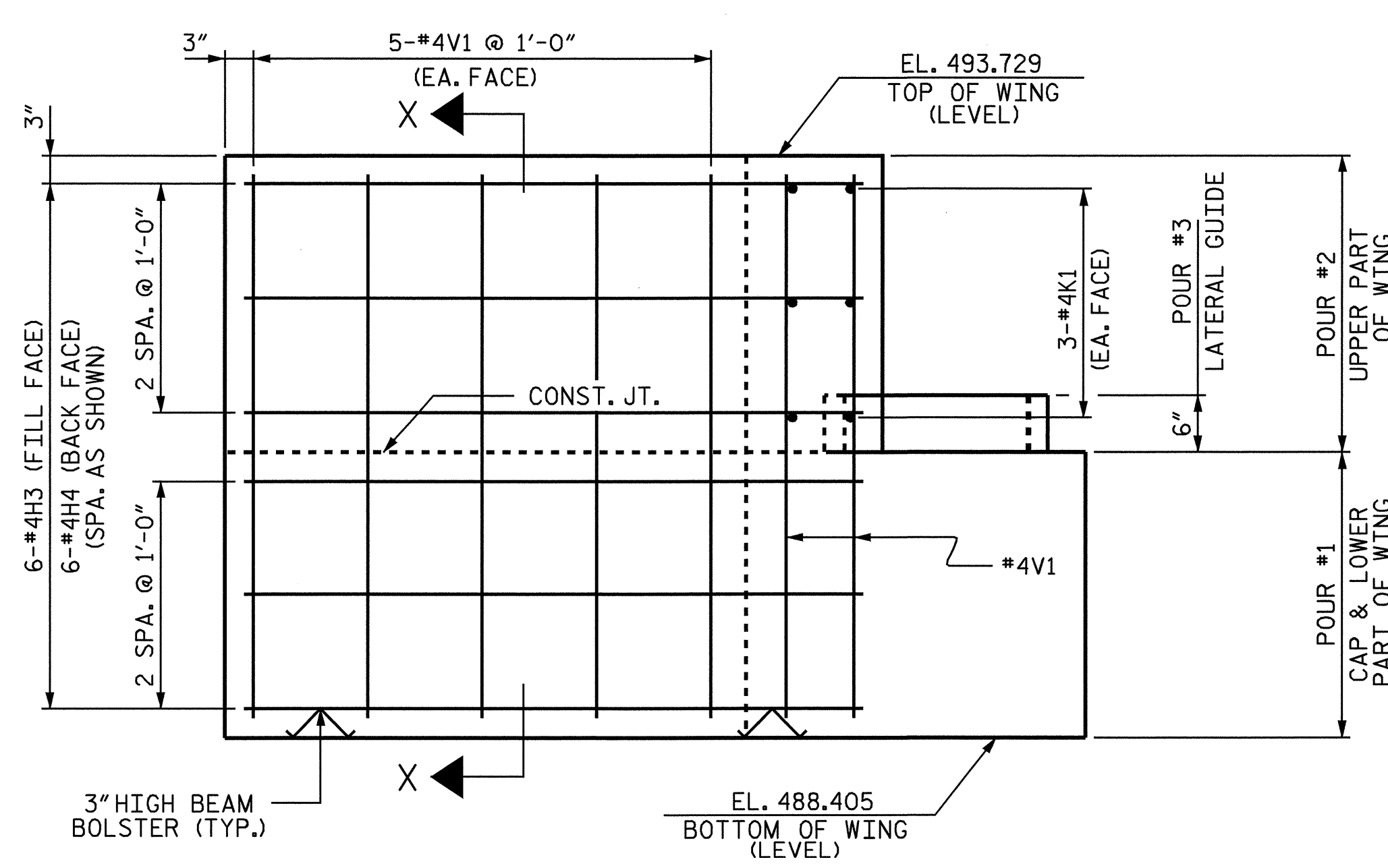
PLAN OF RIGHT WING (W2)



SECTION X-X



ELEVATION OF LEFT WING (W1)



ELEVATION OF RIGHT WING (W2)

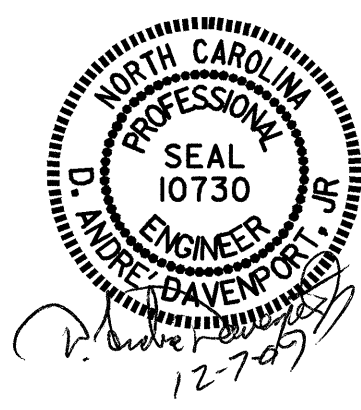
PROJECT NO. B-4216
 ORANGE COUNTY
 STATION: 18+55.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT #1

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-15	
1			3			TOTAL SHEETS 24	
2			4				



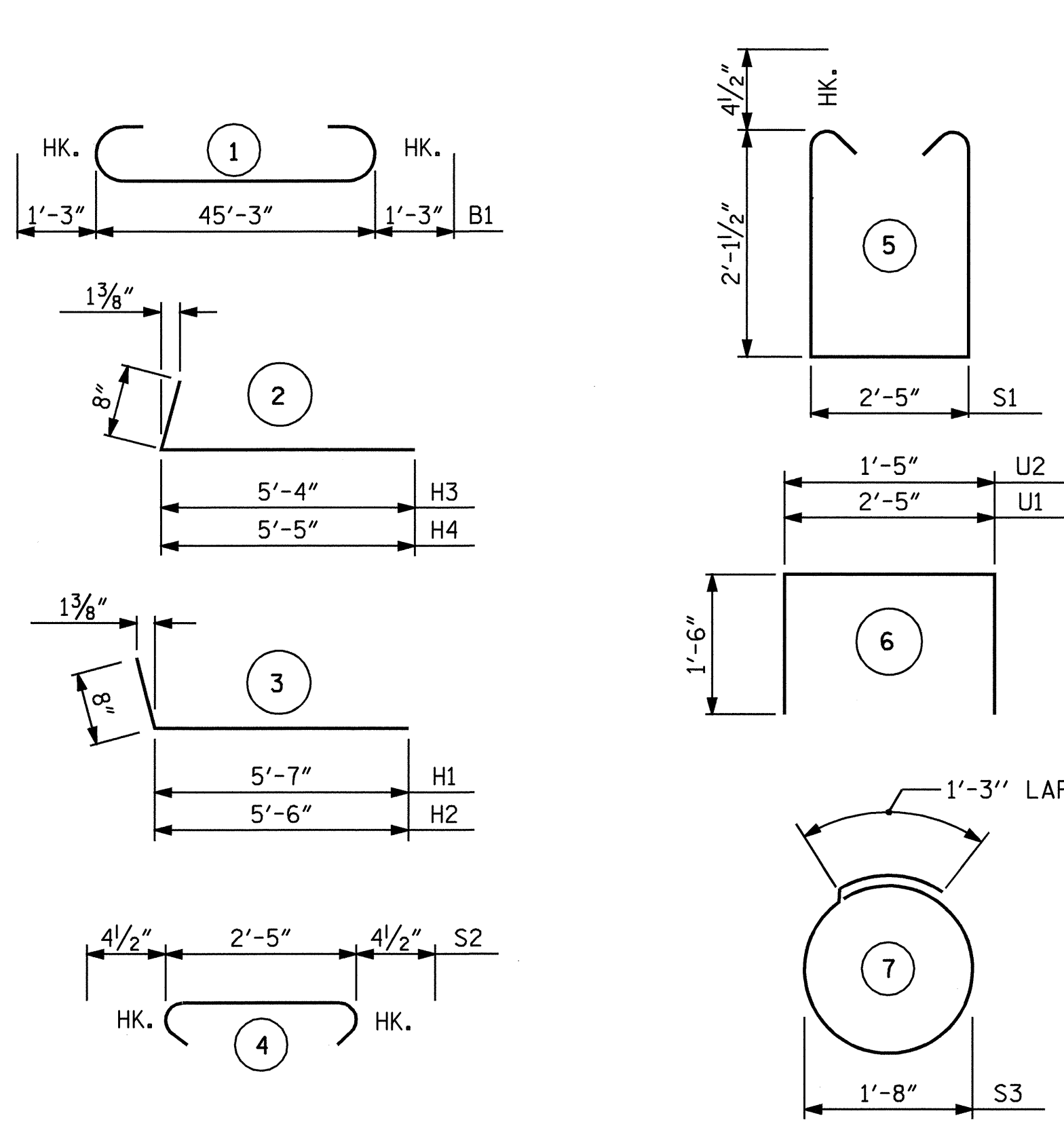
DRAWN BY: W. B. HILL DATE: 4/09
 CHECKED BY: M. G. SHAIKH DATE: 4/09

07-DEC-2009 08:09
 z:\structures\wbh\Microstation\b4216.sd.EB*.dgn
 adavenport

NC006

BAR TYPES

BILL OF MATERIAL



BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9		47'-9"	1299
B2	2	#6	STR	45'-4"	136
B3	8	#4	STR	23'-11"	128
B4	4	#4	STR	10'-5"	28
B5	11	#4	STR	2'-5"	18
D1	26	#6	STR	1'-6"	59
H1	6	#4	3	6'-3"	25
H2	6	#4	3	6'-2"	25
H3	6	#4	2	6'-0"	24
H4	6	#4	2	6'-1"	24
K1	12	#4	STR	3'-2"	25
S1	44	#4	5	7'-5"	218
S2	44	#4	4	3'-2"	93
S3	14	#4	7	6'-6"	61
U1	7	#4	6	5'-5"	25
U2	4	#4	6	4'-5"	12
V1	40	#4	STR	4'-11"	131

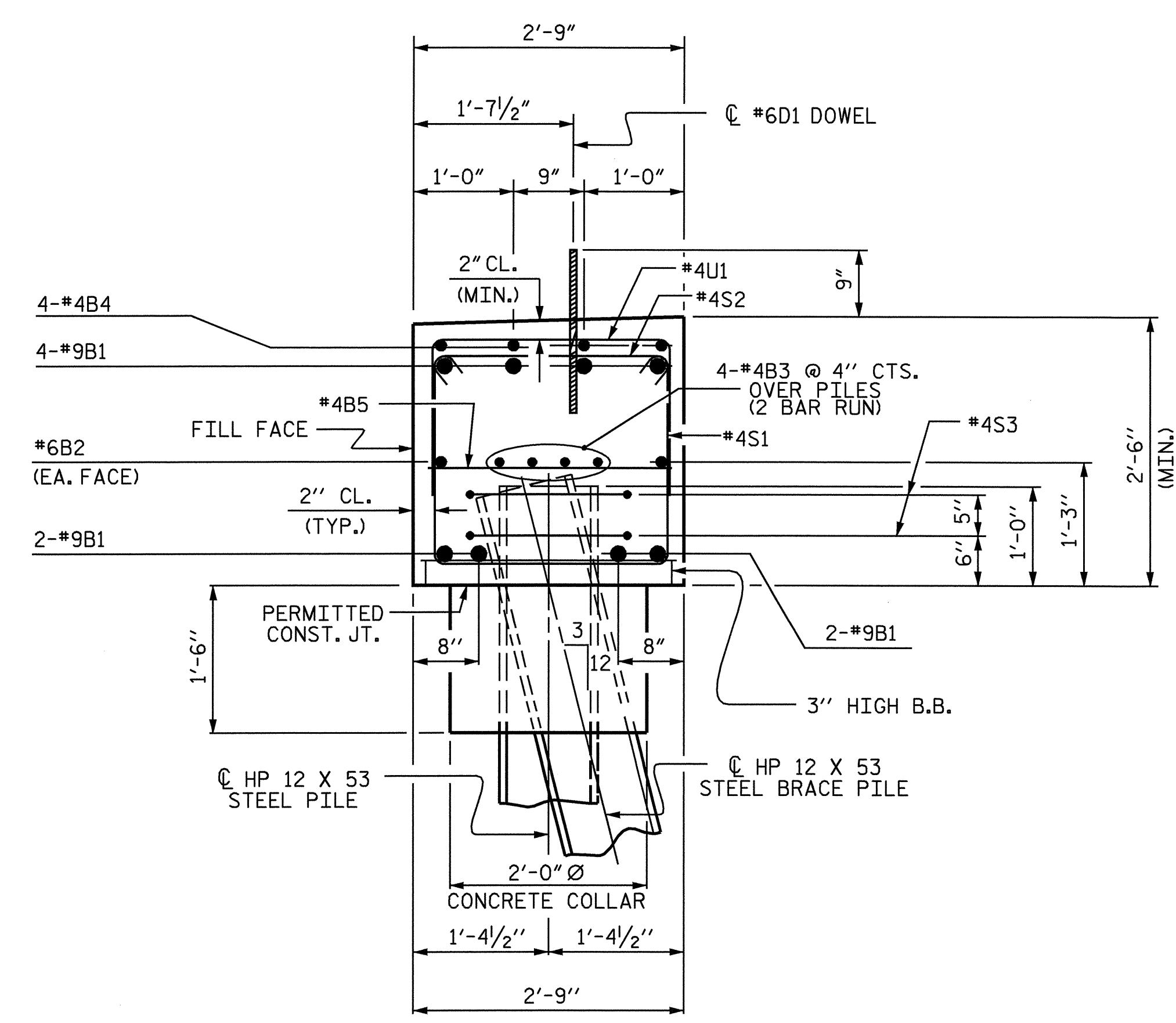
REINFORCING STEEL = 2331 LBS

CLASS A CONCRETE BREAKDOWN

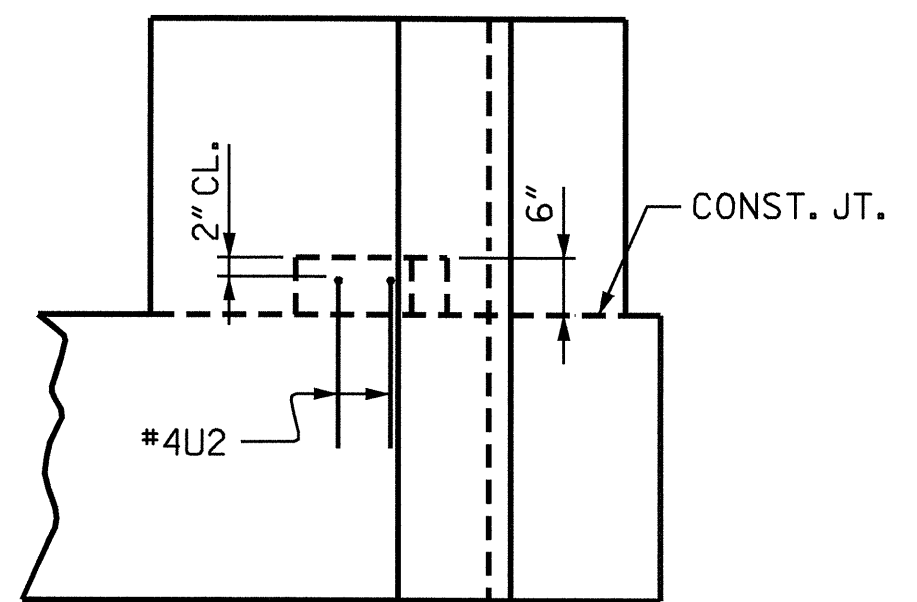
POUR #1 CAP, LOWER PART OF WINGS & PILE COLLARS (C.Y.)	14.8
POUR #2 UPPER PART OF WINGS (C.Y.)	1.7
POUR #3 LATERAL GUIDES (C.Y.)	0.1
TOTAL CLASS A CONCRETE (C.Y.)	16.6

HP 12 X 53 STEEL PILES NO. 7 (LIN FT.)	70
STEEL PILES POINTS EACH	7

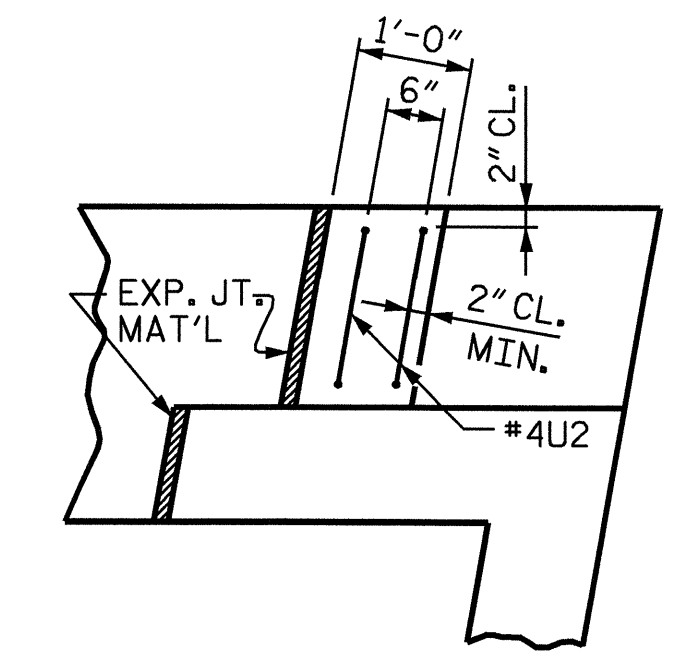
ALL BAR DIMENSIONS ARE OUT TO OUT.



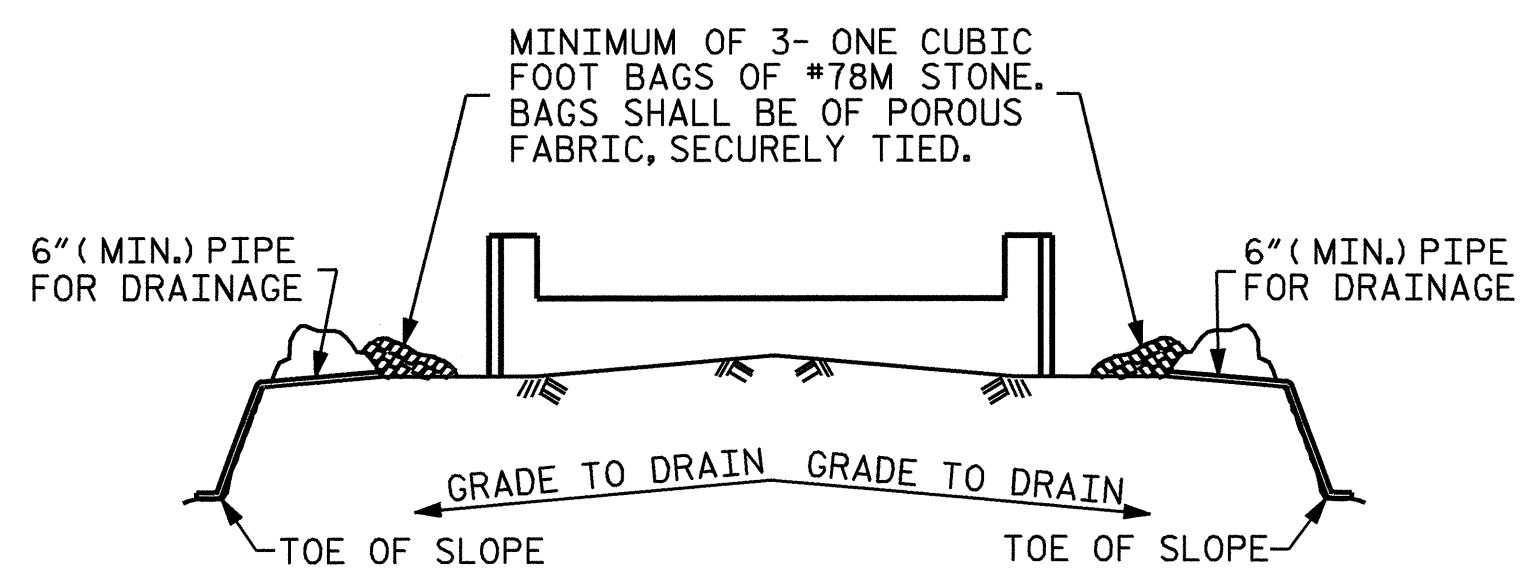
SECTION A-A



ELEVATION



PLAN LATERAL GUIDE (TYPICAL EACH SIDE)

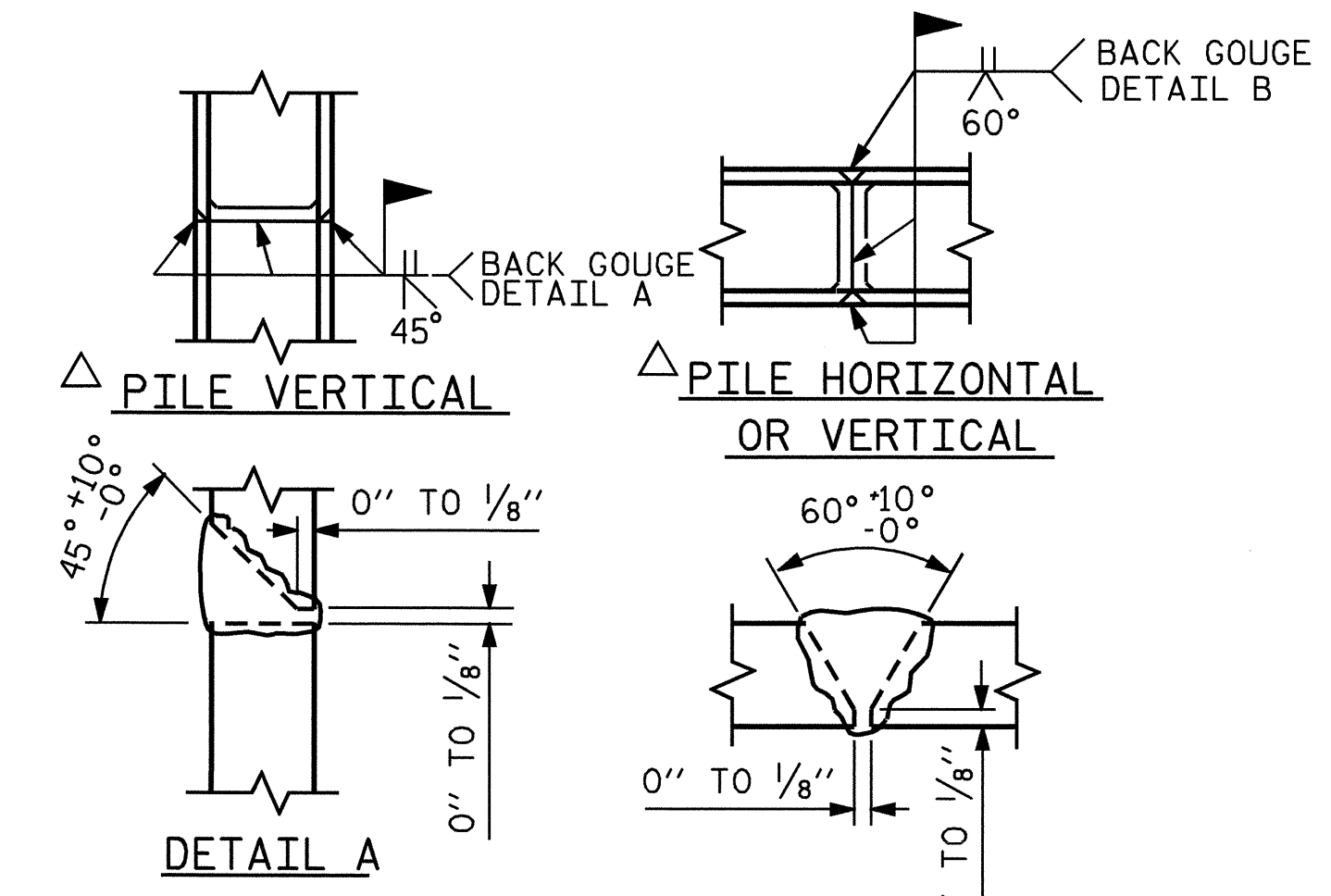


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR EFFECTIVENESS.

NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT

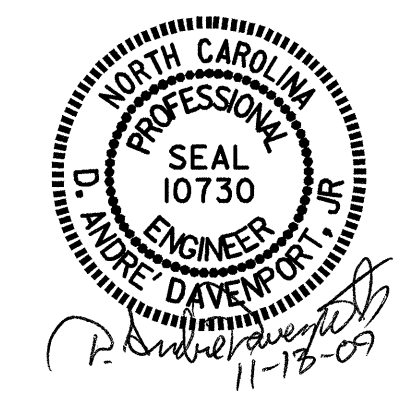


PILE SPLICE DETAILS

PROJECT NO. B-4216
ORANGE COUNTY
STATION: 18+55.00 -L-

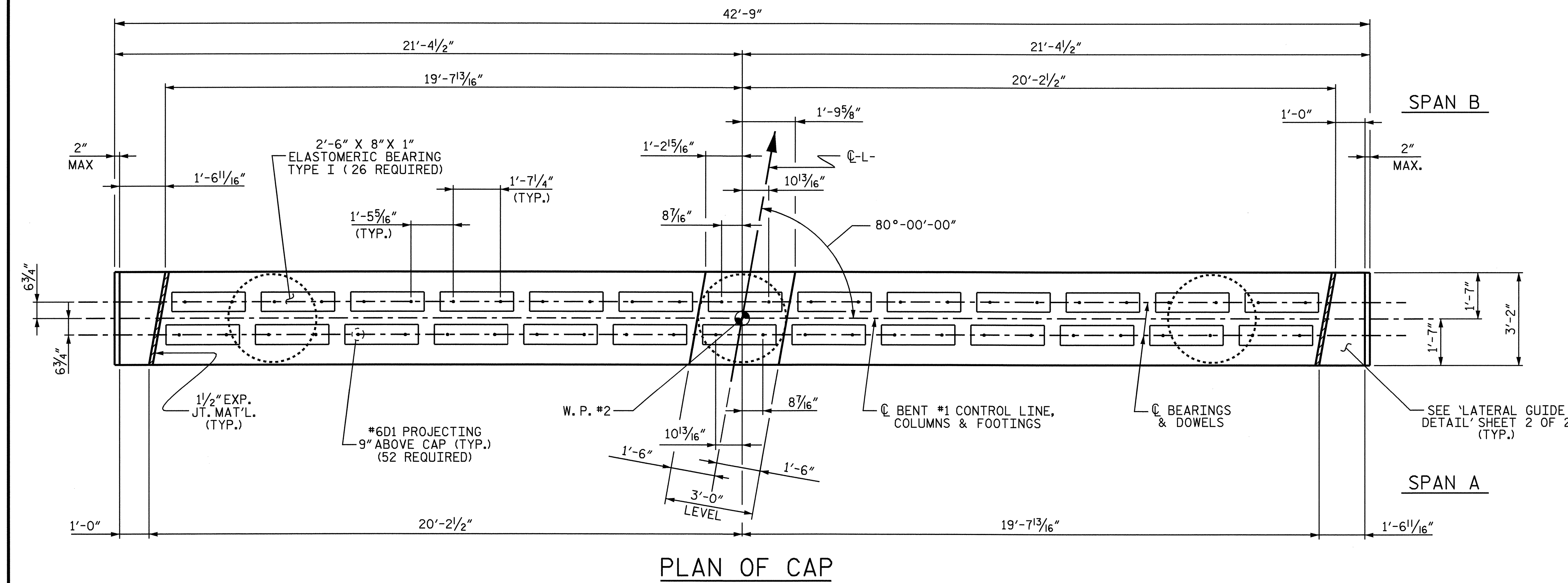
SHEET 3 OF 3
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE END BENT #1

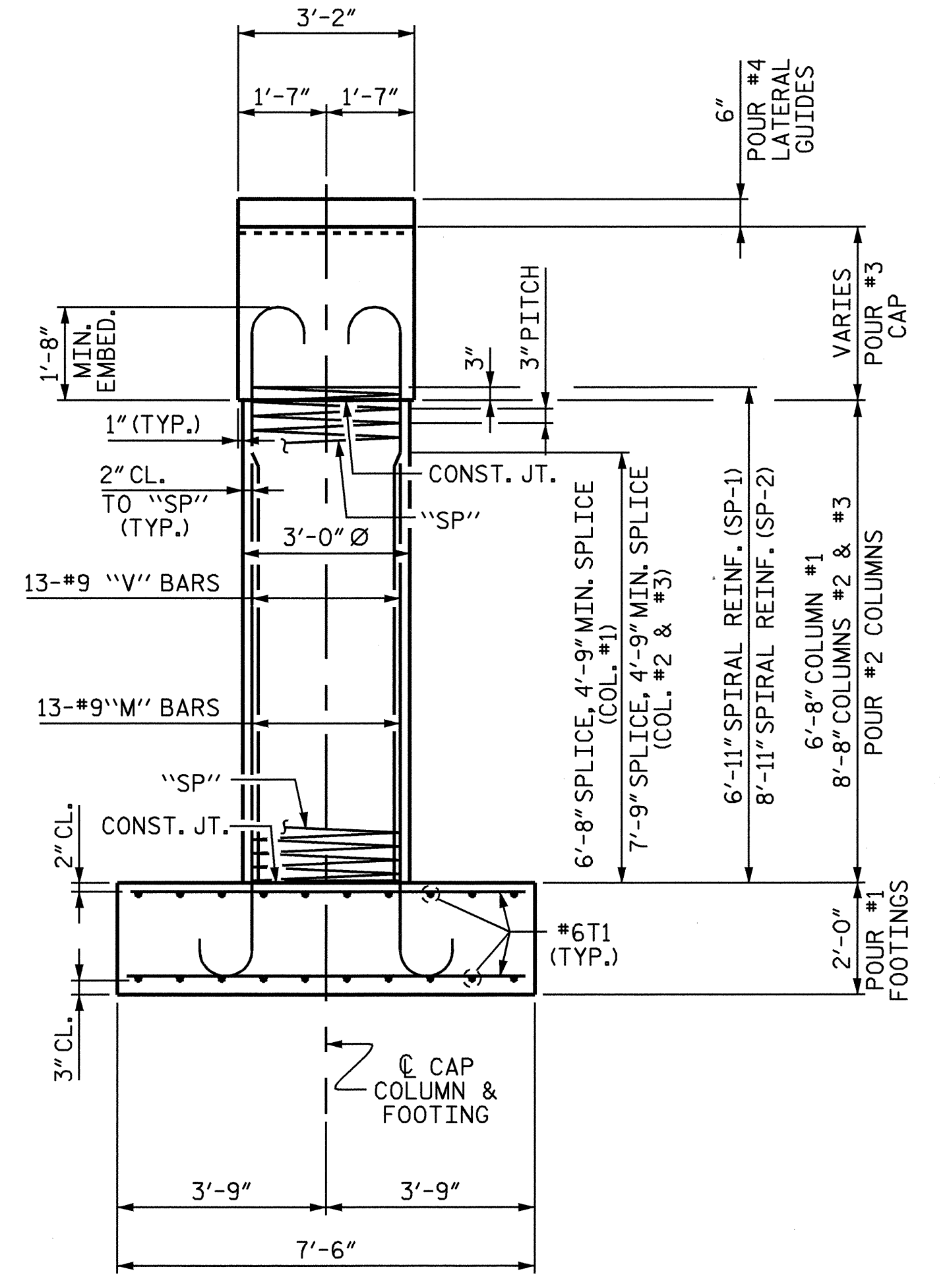


REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-16
1			3			TOTAL SHEETS 24
2			4			

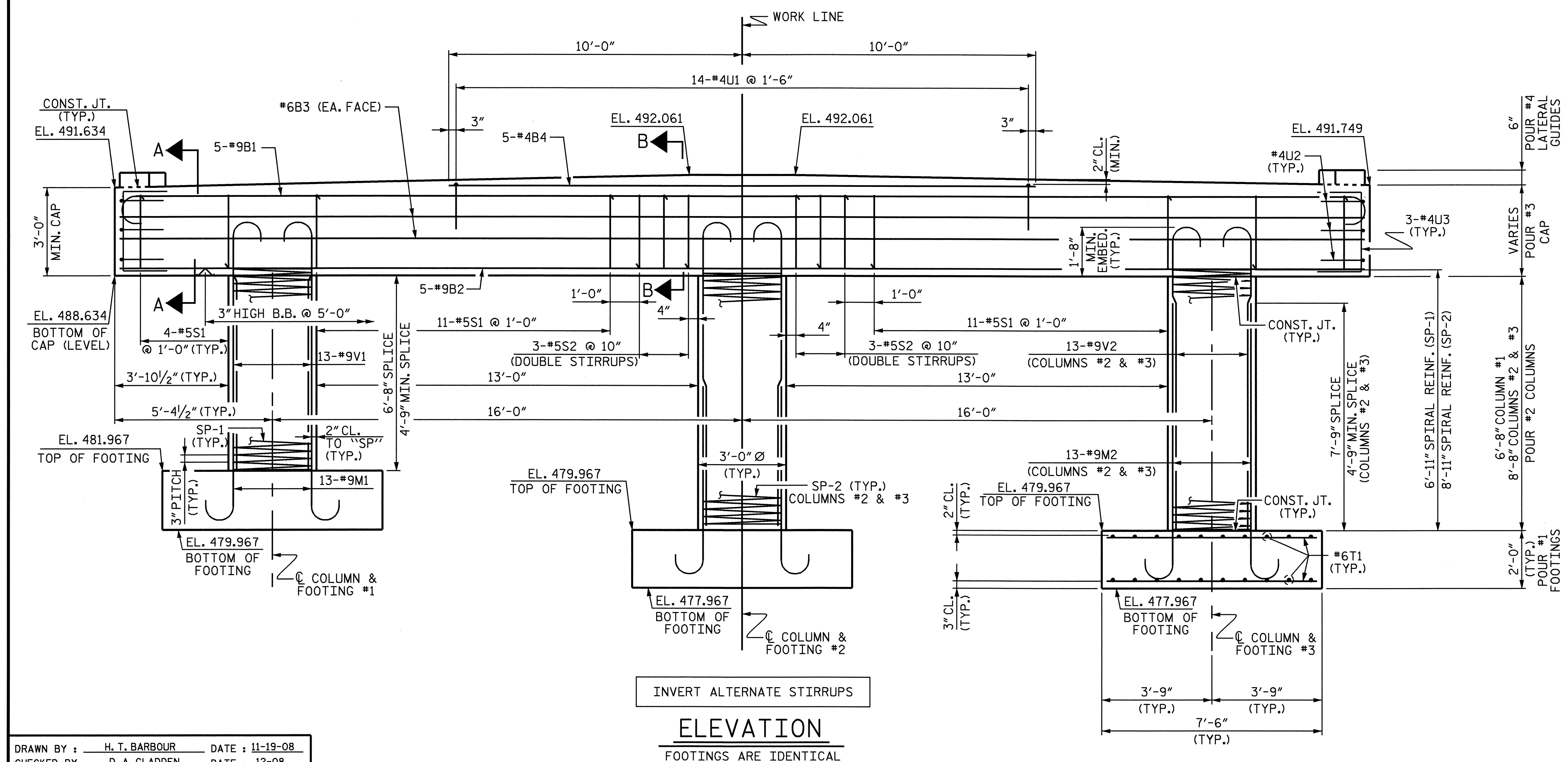
DRAWN BY: W. B. HILL DATE: 4/09
CHECKED BY: M. G. SHAIKH DATE: 4/09



PLAN OF CAP



RIGHT END ELEVATION



ELEVATION

FOOTINGS ARE IDENTICAL

NOTES

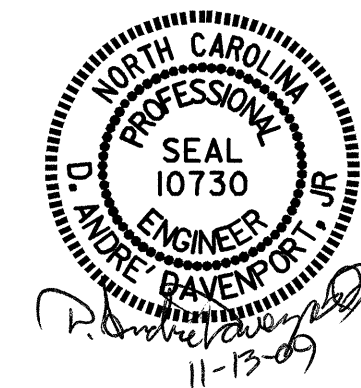
STIRRUPS IN THE CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.
 THE LATERAL GUIDE AT EACH END OF THE CAP IS NOT TO BE POURED UNTIL AFTER THE CORED SLAB UNITS ARE IN PLACE.
 THE CONTRACTORS ATTENTION IS CALLED TO THE FACT THAT THE REINFORCEMENT OF THE COLUMN IS DETAILED WITH THREE FEET OF EXTRA LENGTH.

PROJECT NO. B-4216
 ORANGE COUNTY
 STATION: 18+55.00-L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

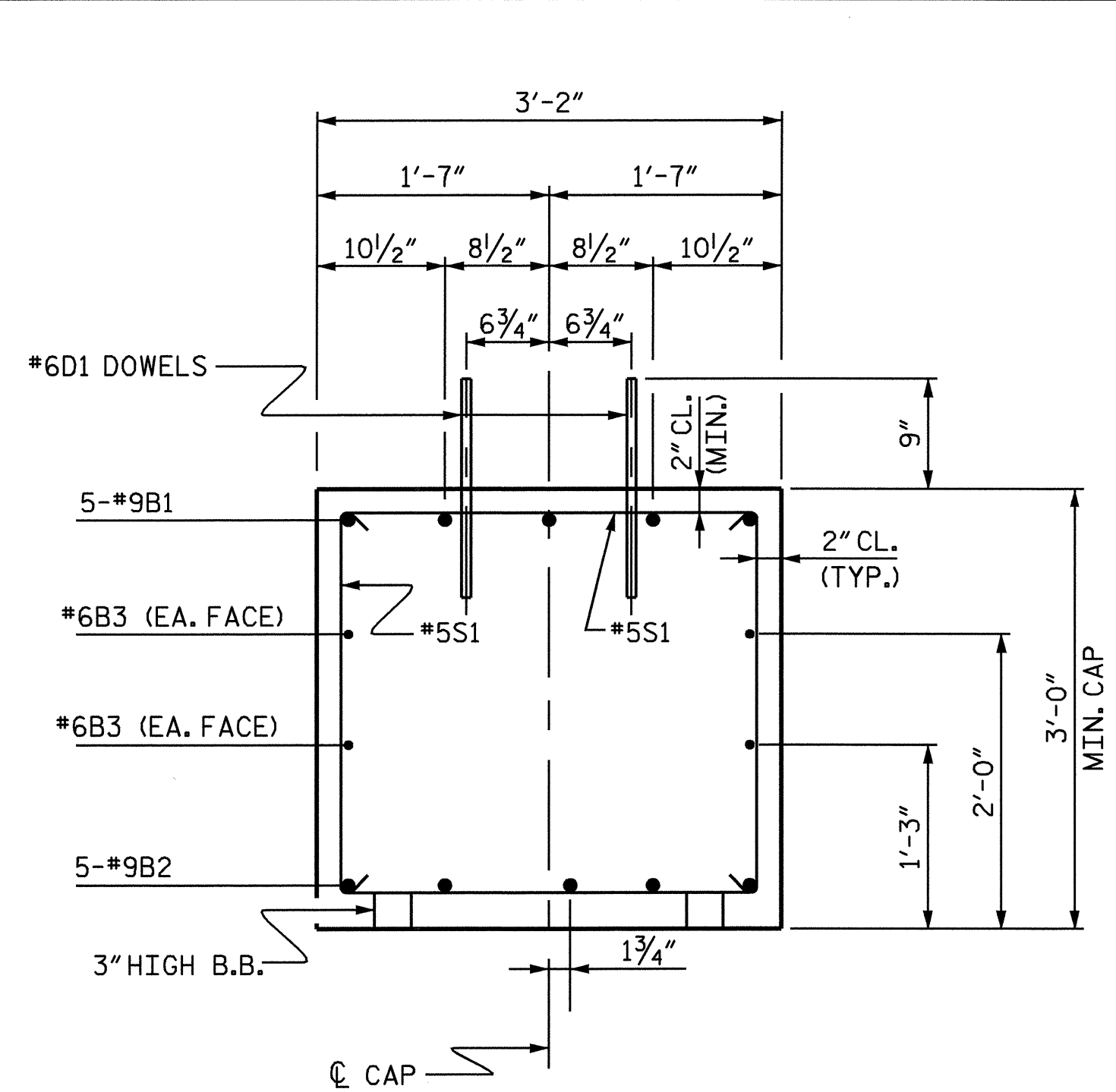
SUBSTRUCTURE
 BENT #1



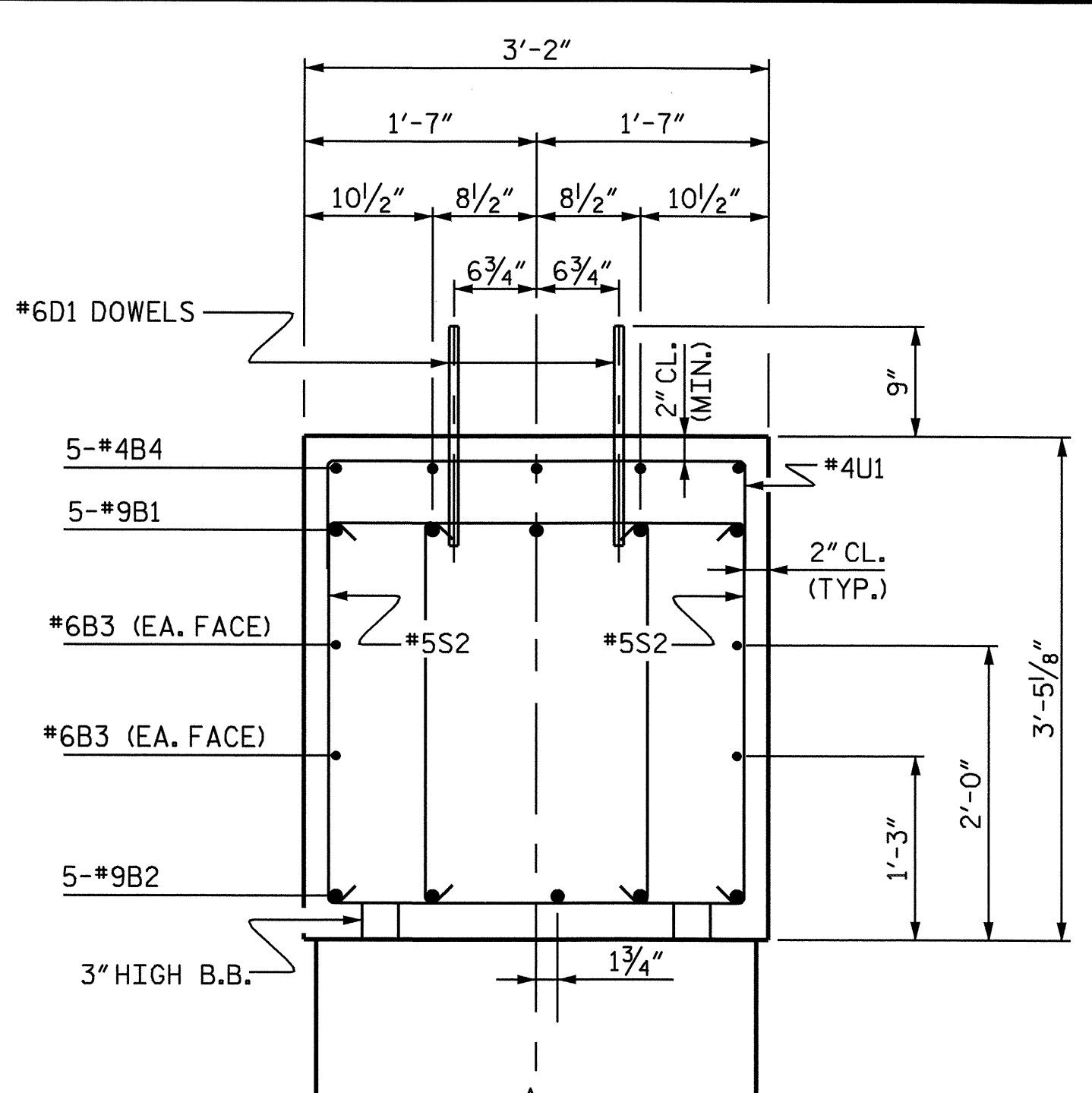
REVISIONS				SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

DRAWN BY: H. T. BARBOUR DATE: 11-19-08
 CHECKED BY: D. A. GLADDEN DATE: 12-08

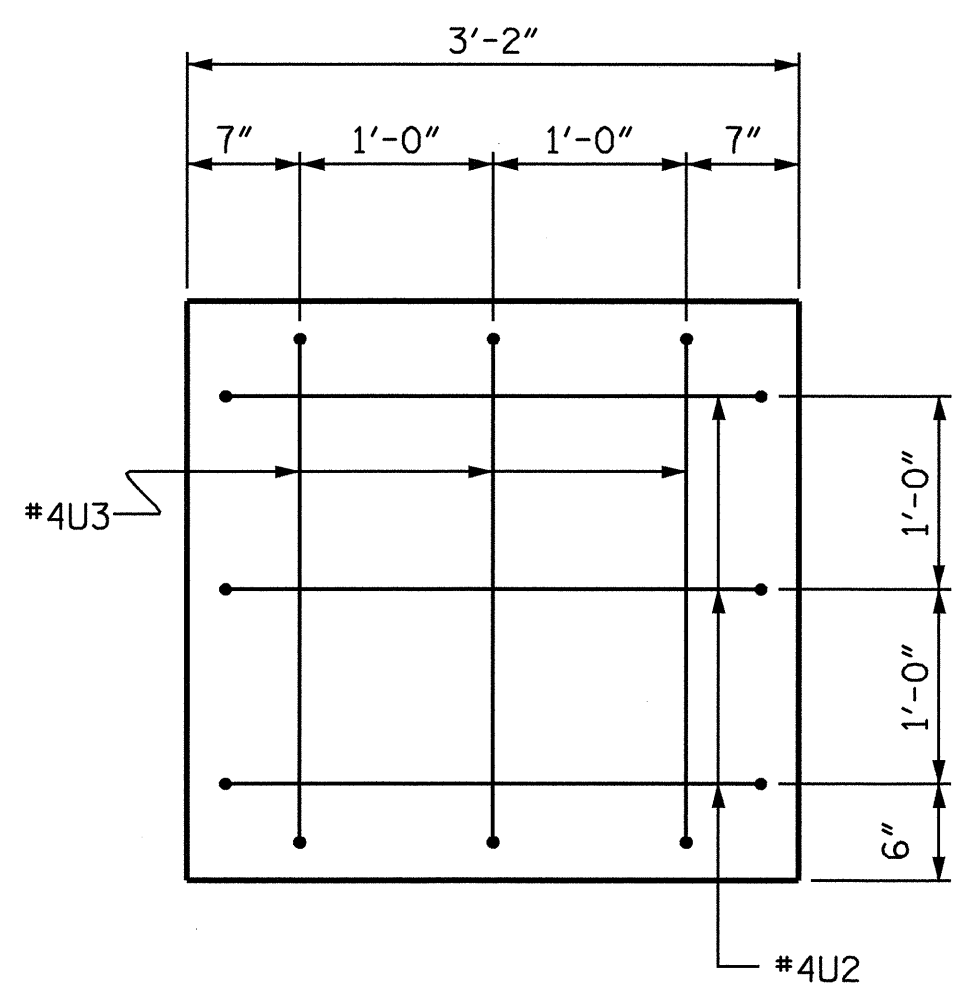
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 adavenport



SECTION A-A



SECTION B-B



END VIEW

(TYP. EA. END)
2" MIN. CONCRETE COVER FROM
END OF CAP REQUIRED FOR ALL #4U2,
#4U3 BARS. #4U2, #4U3 BARS MAY BE
SHIFTED UP TO 2" TO CLEAR "B" BARS.

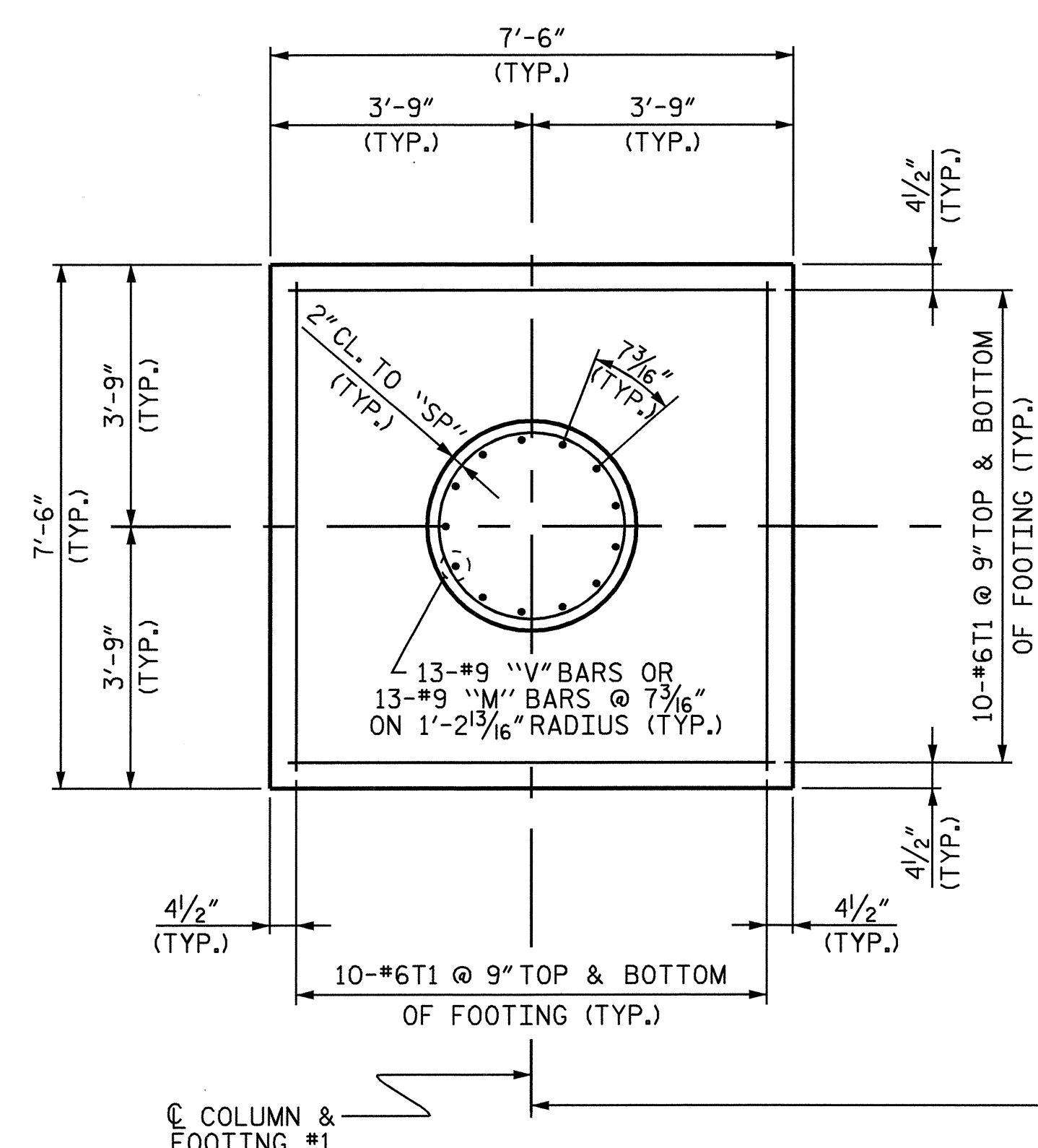
BAR TYPES

BILL OF MATERIAL

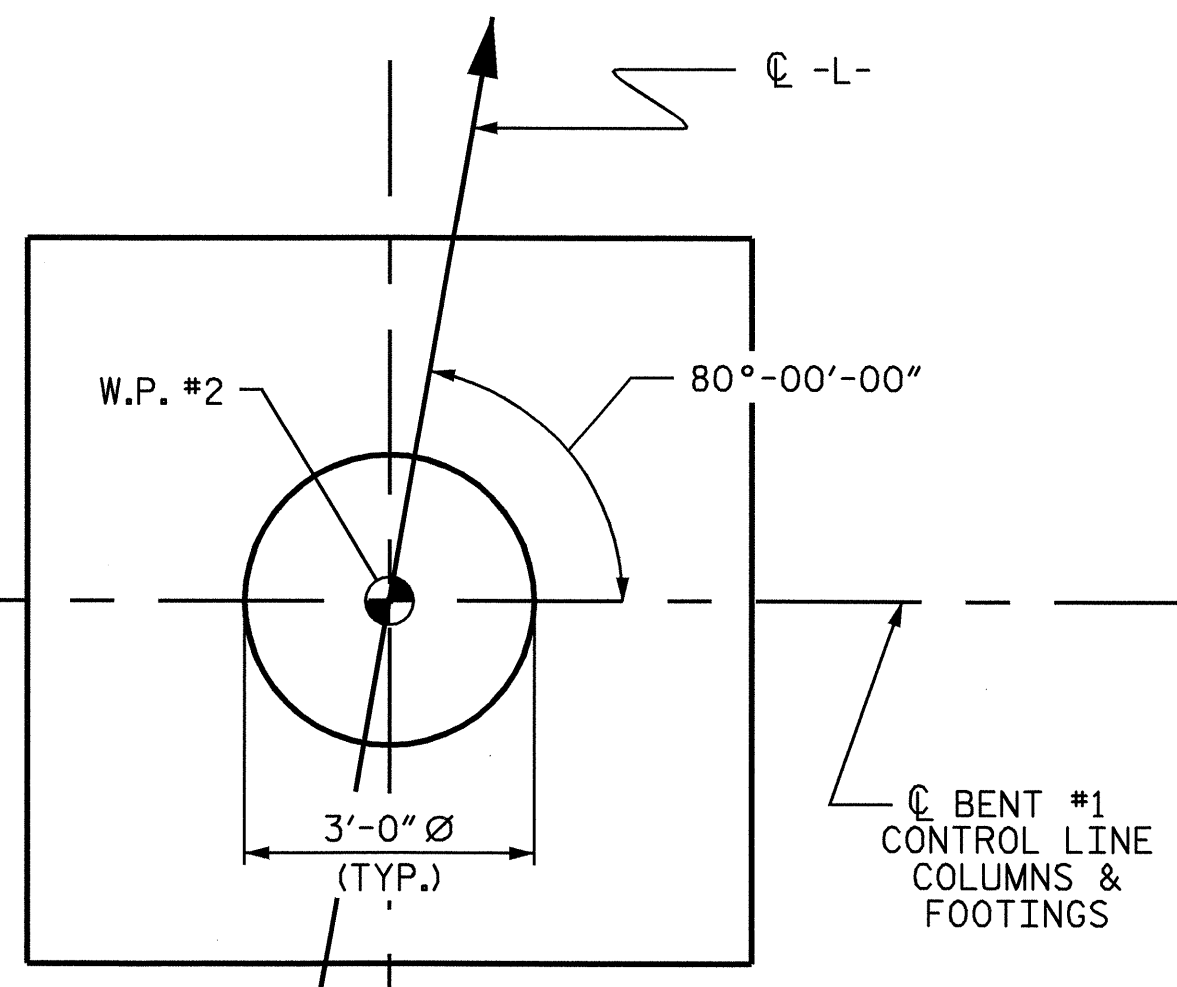
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	5	#9		44'-9"	761
B2	5	#9	STR	42'-5"	721
B3	4	#6	STR	42'-5"	255
B4	5	#4	STR	20'-0"	67
B5	4	#4	STR	2'-10"	8
D1	52	#6	STR	1'-6"	117
M1	13	#9		9'-6"	420
M2	26	#9		10'-8"	943
S1	30	#5		9'-0"	282
S2	12	#5		8'-6"	106
T1	120	#6	STR	7'-2"	1292
U1	14	#4		5'-10"	55
U2	6	#4		5'-8"	23
U3	6	#4		5'-6"	22
U4	2	#4		3'-6"	5
U5	2	#4		3'-8"	5
U6	2	#4		3'-10"	5
U7	2	#4		4'-0"	5
V1	13	#9		9'-7"	424
V2	26	#9		11'-7"	1024
REINFORCING STEEL =					6540 LBS
SP-1	1	*	5	253'-3"	169
SP-2	2	*	5	319'-1"	426
SPIRAL REINFORCING STEEL =					595 LBS
CLASS A CONCRETE					
POUR #1 FOOTINGS			CU. YDS.	12.5	
POUR #2 COLUMNS			CU. YDS.	6.3	
POUR #3 CAP			CU. YDS.	16.3	
POUR #4 LATERAL GUIDE			CU. YDS.	0.2	
TOTAL			CU. YDS.	35.3	

ALL BAR DIMENSIONS ARE OUT TO OUT.

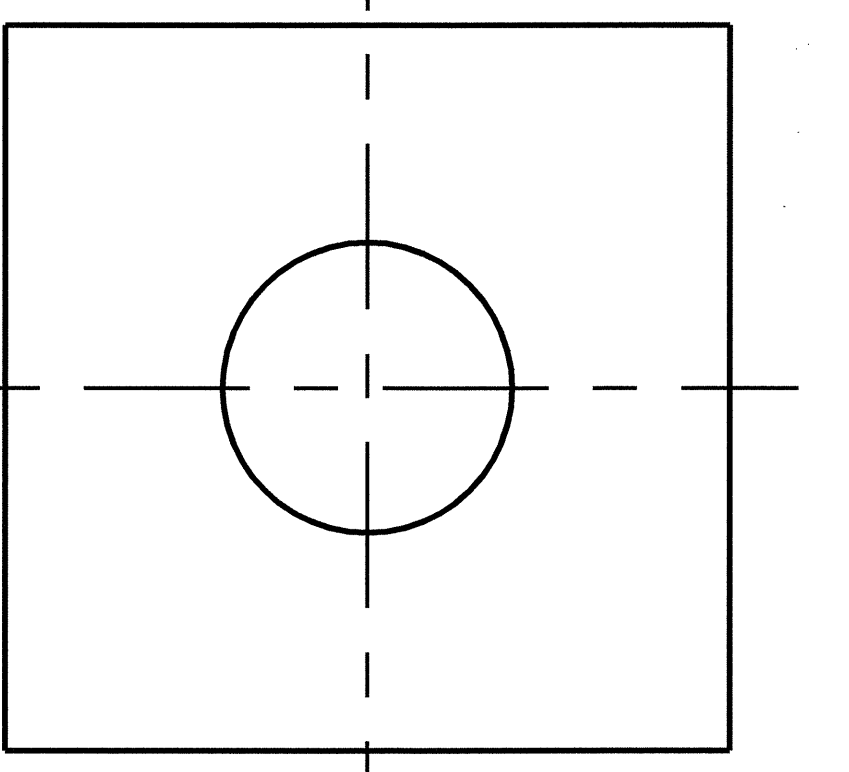
* THE SP-1 AND SP-2 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.



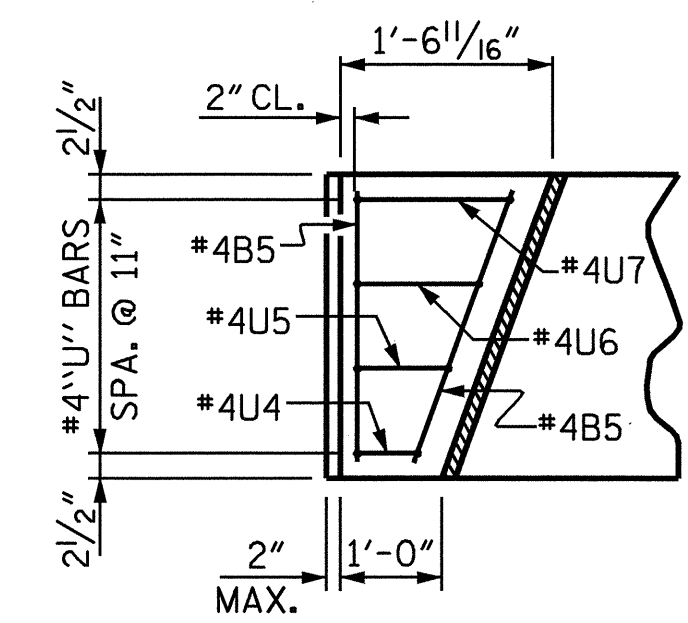
PLAN OF COLUMN AND FOOTING #1



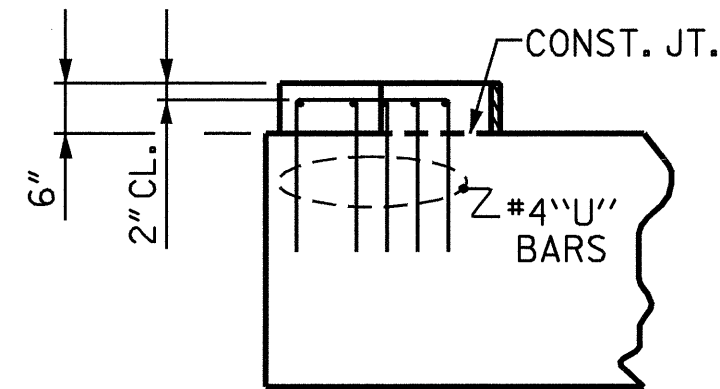
PLAN OF COLUMN AND FOOTING #2



PLAN OF COLUMN AND FOOTING #3



PLAN LATERAL GUIDE DETAILS

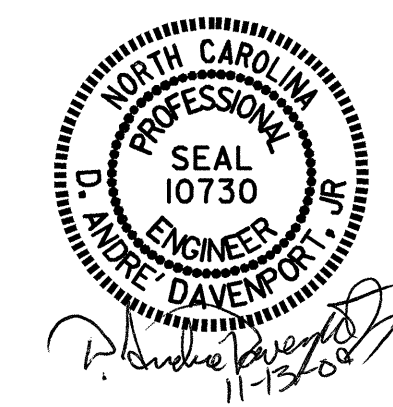


ELEVATION LATERAL GUIDE DETAILS

PROJECT NO. B-4216
ORANGE COUNTY
STATION: 18+55.00-L-
SHEET 2 OF 2

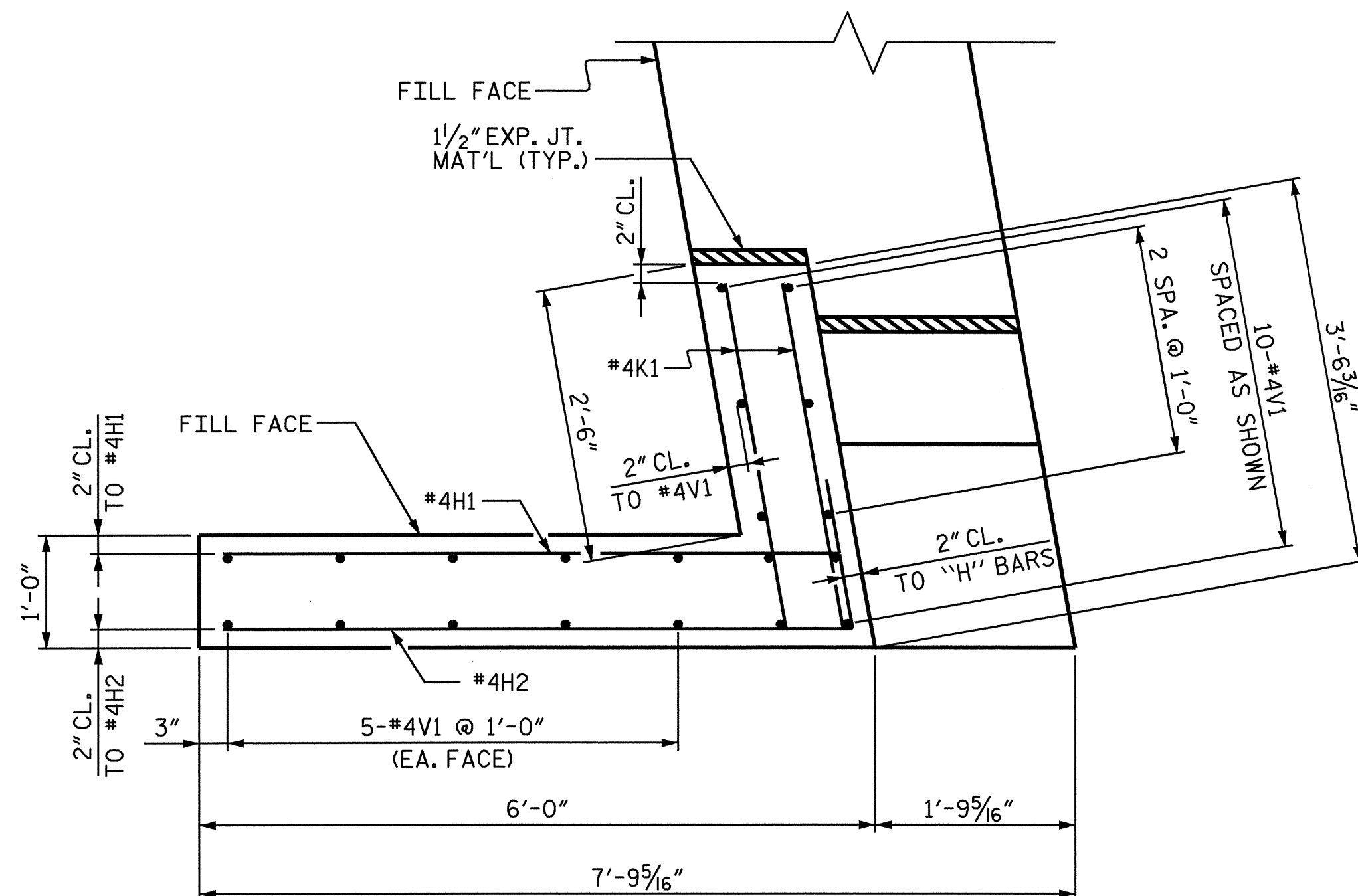
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE BENT #1

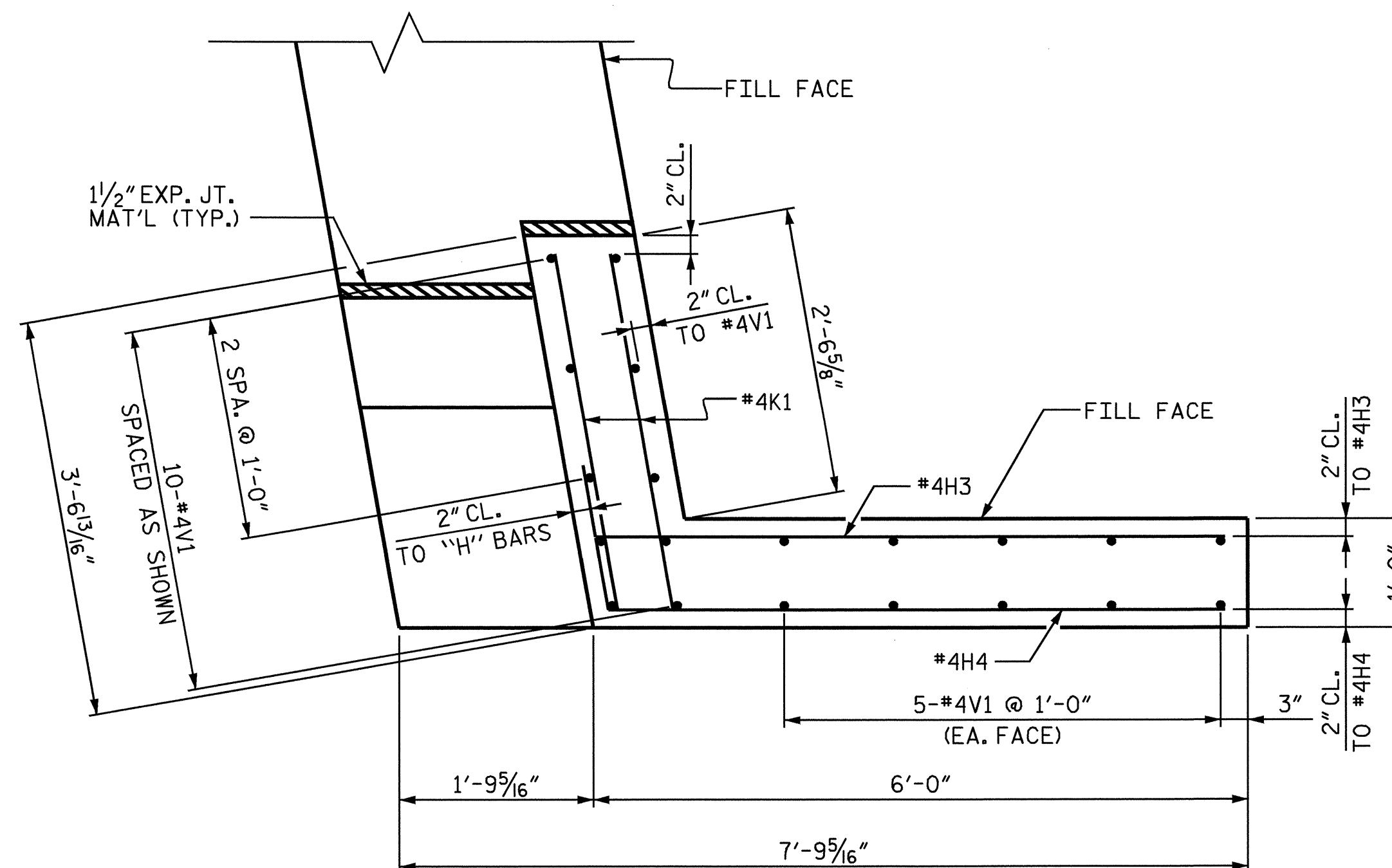


REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-18
1			3			TOTAL SHEETS 24
2			4			

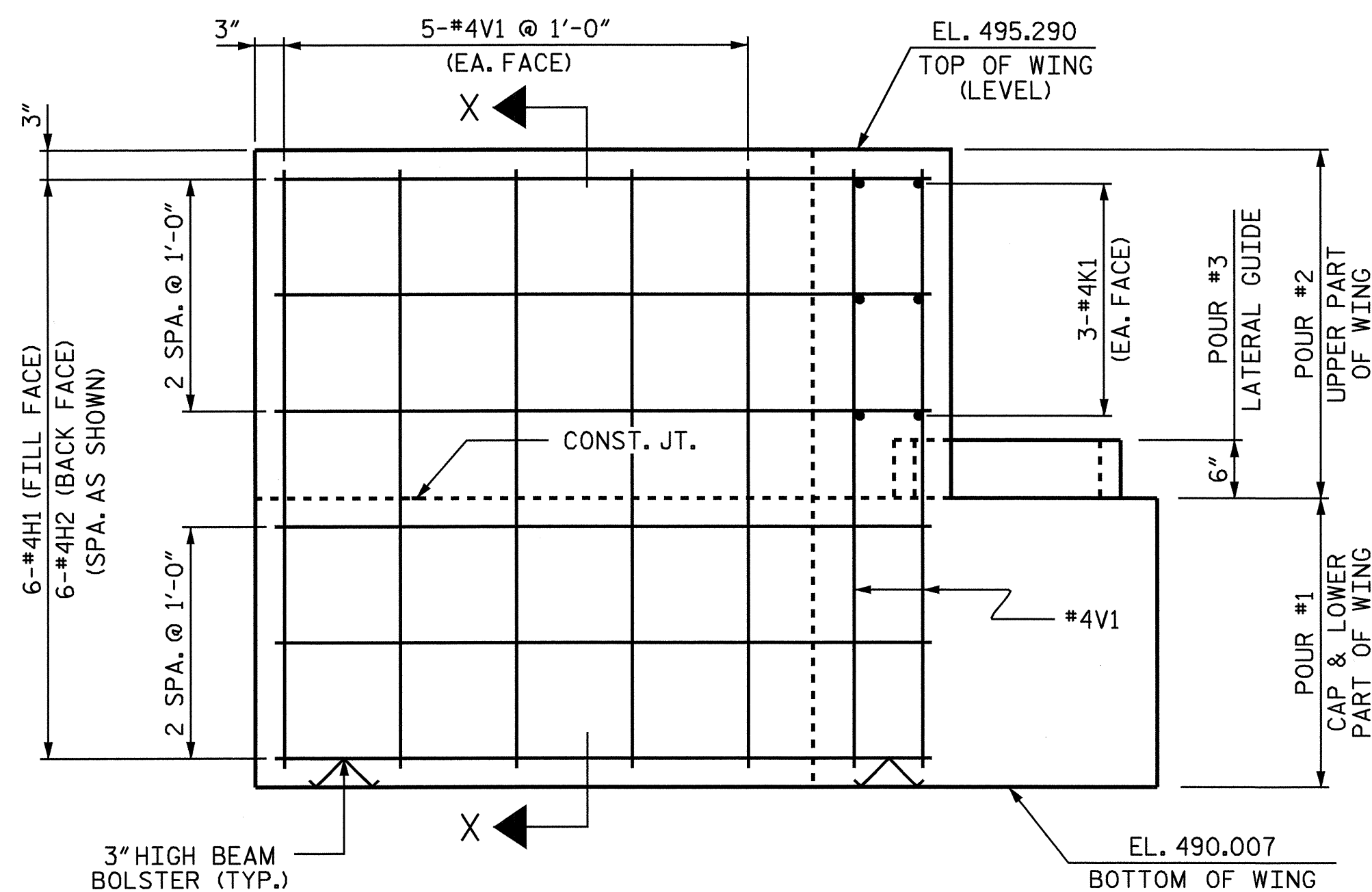
DRAWN BY: H. T. BARBOUR DATE: 11-19-08
CHECKED BY: D. A. GLADDEN DATE: 12-08



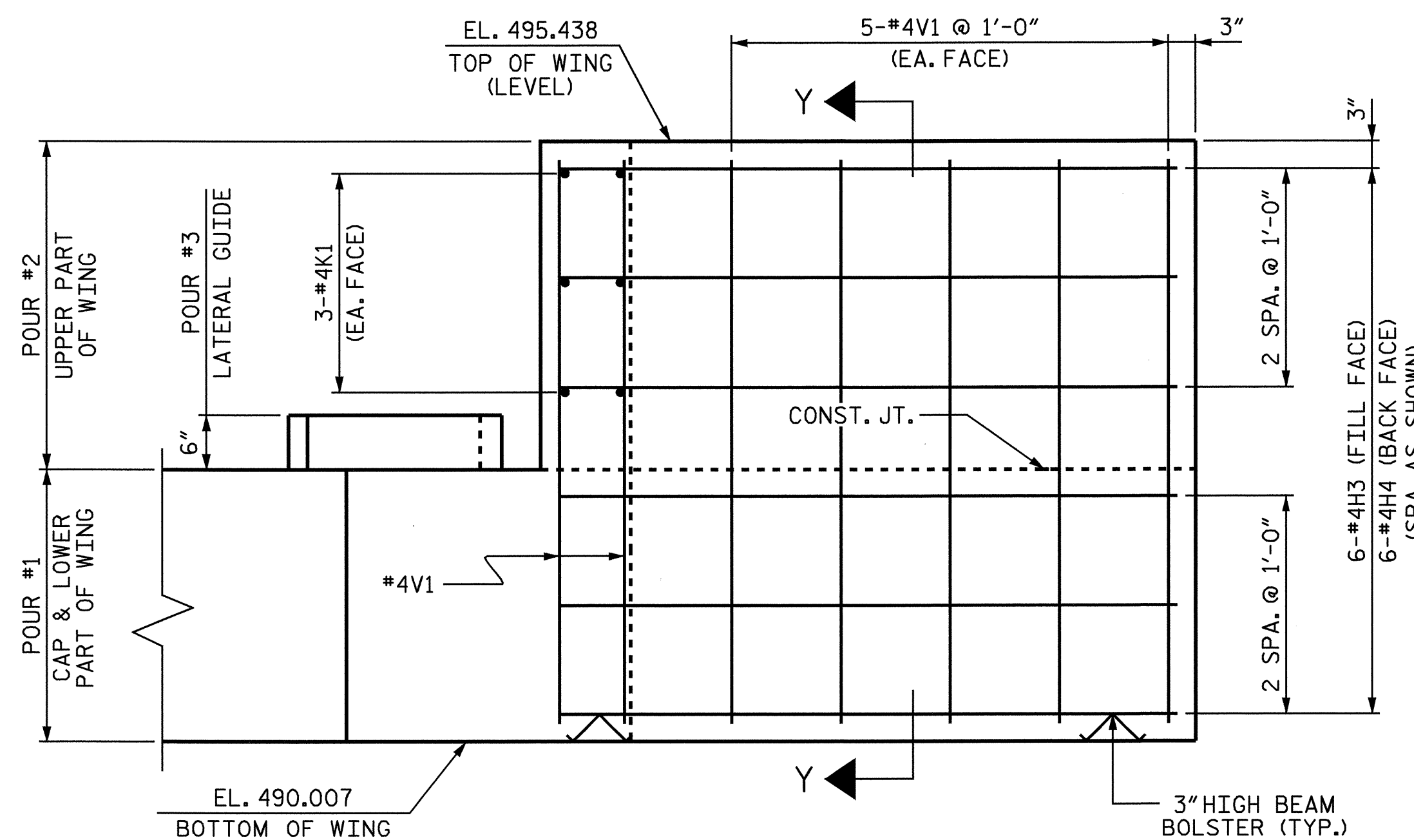
PLAN OF LEFT WING (W1)



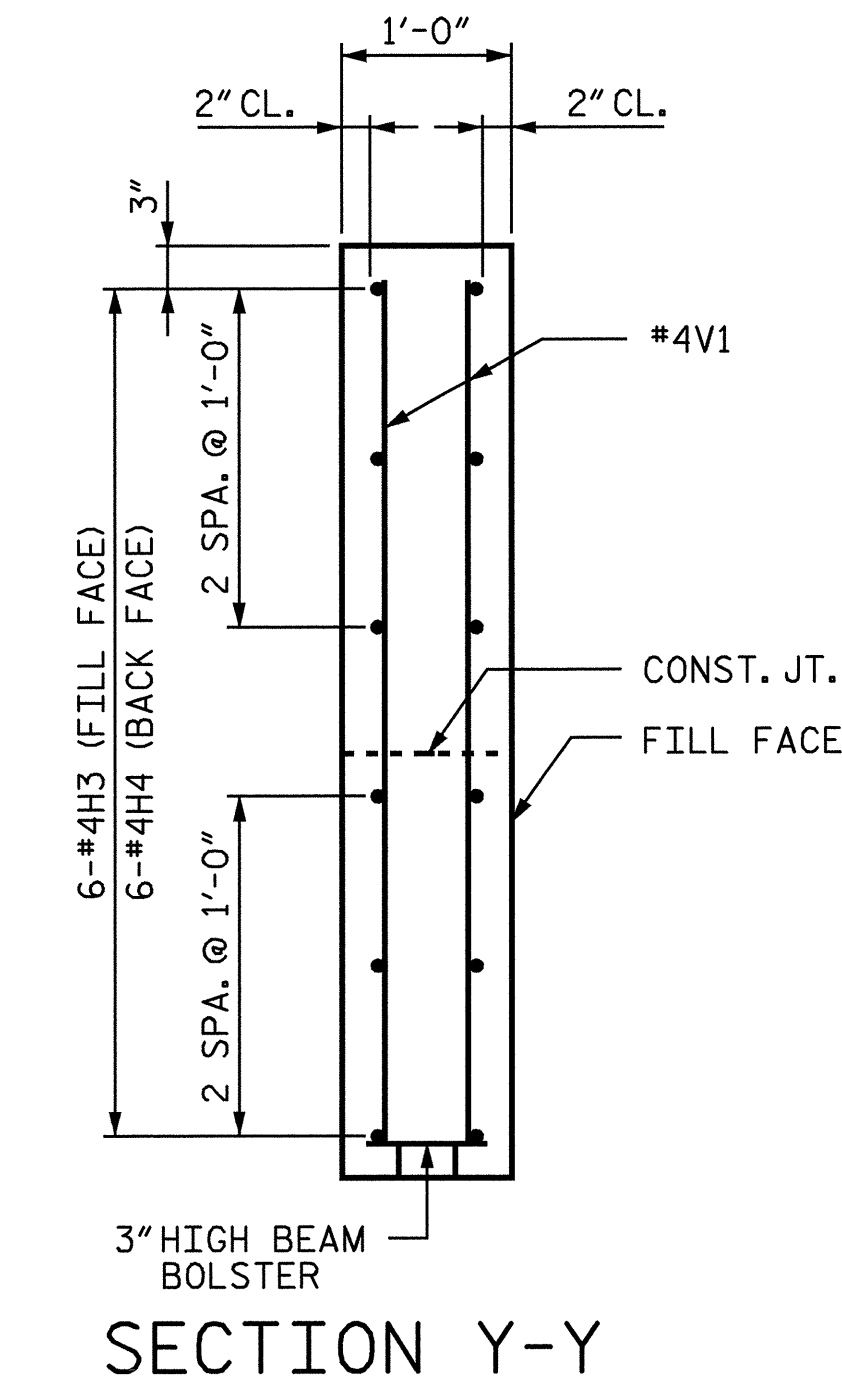
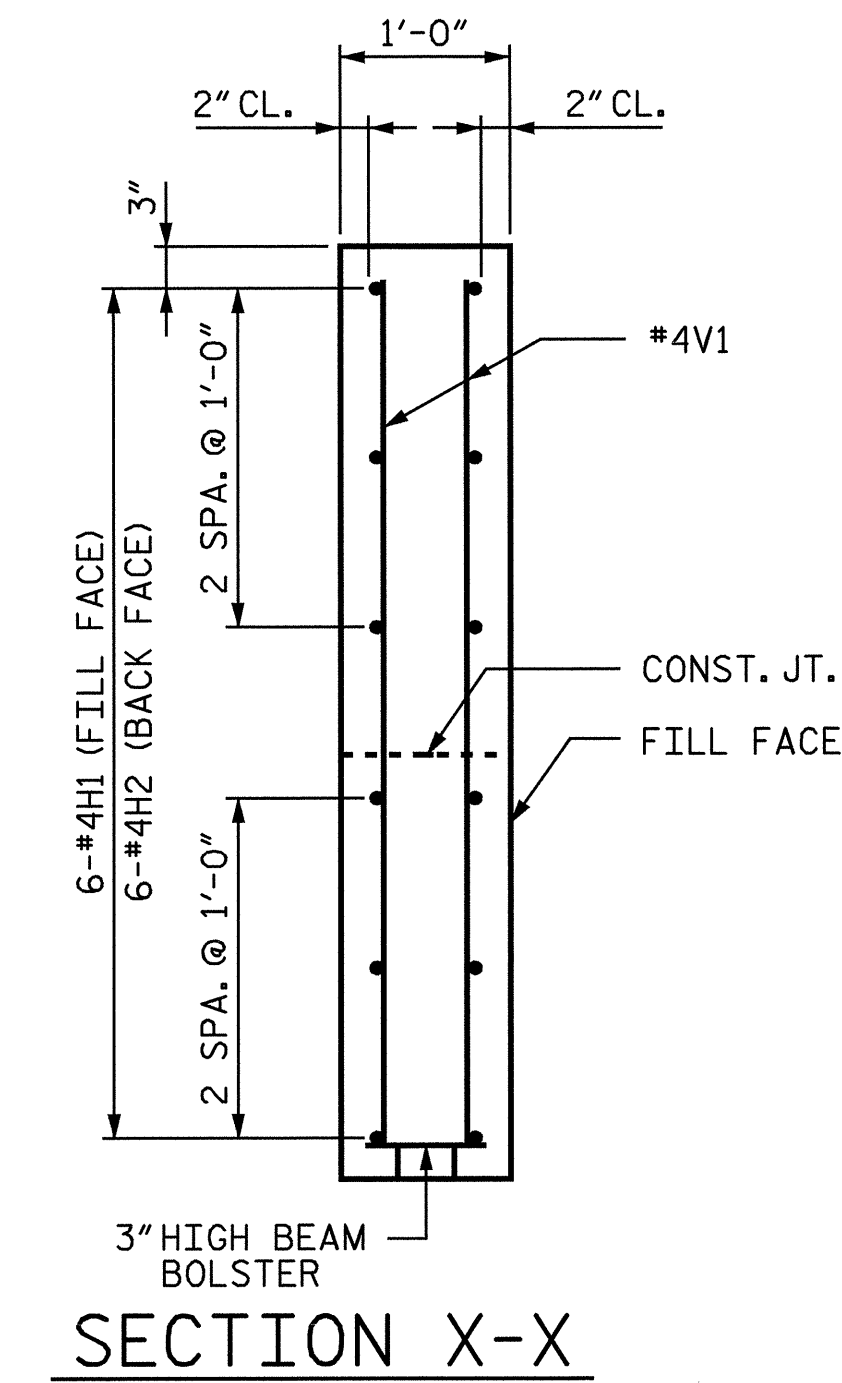
PLAN OF RIGHT WING (W2)



ELEVATION OF LEFT WING (W1)



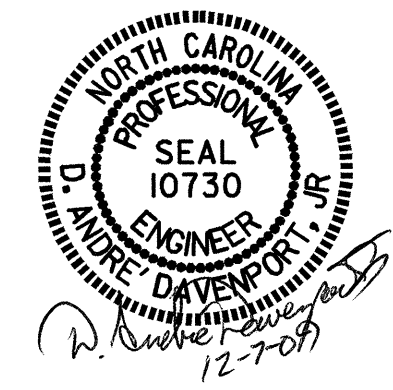
ELEVATION OF RIGHT WING (W2)

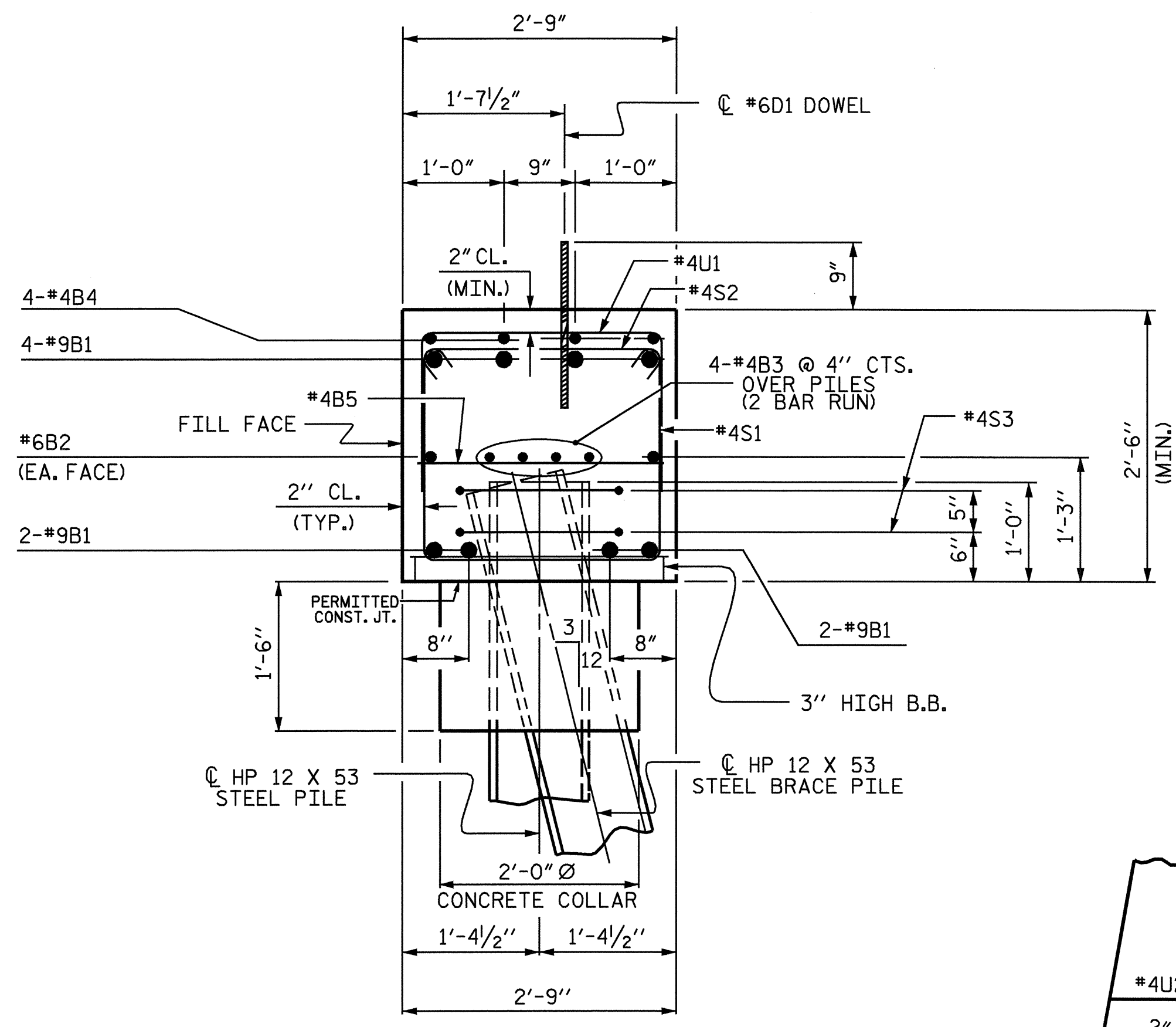


PROJECT NO. B-4216
 ORANGE COUNTY
 STATION: 18+55.00 -L-
 SHEET 2 OF 3

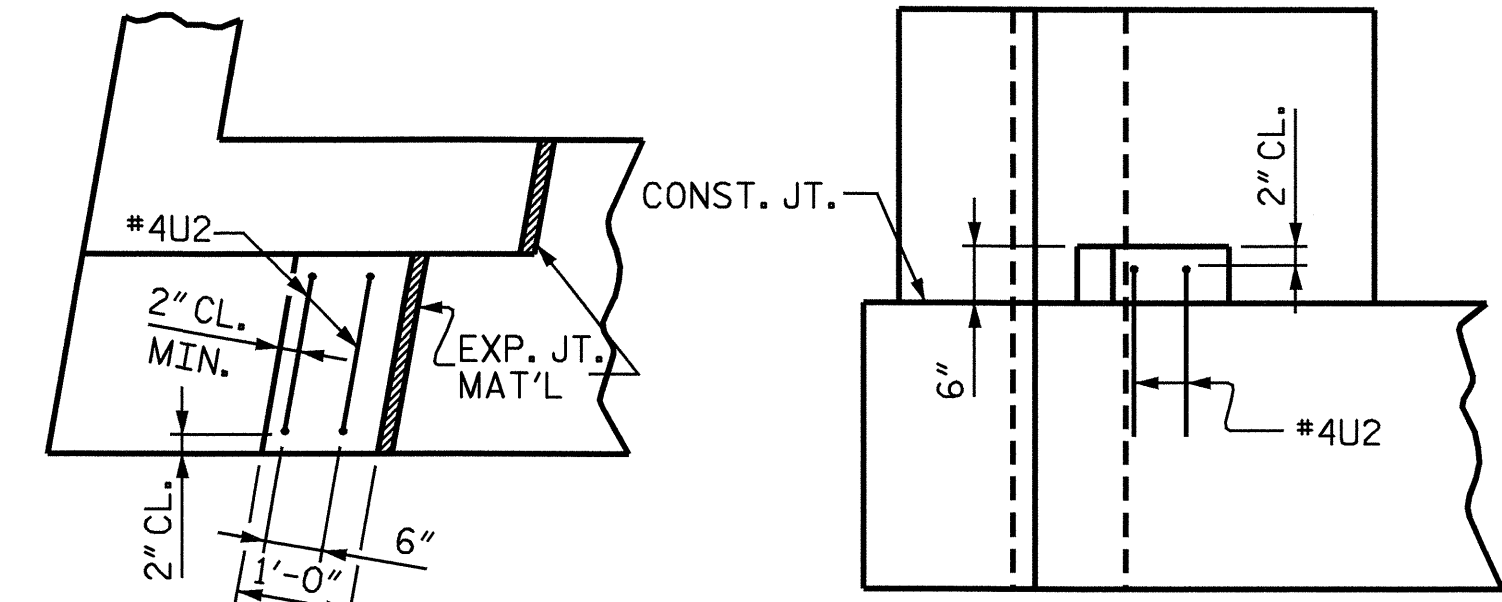
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE END BENT #2					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.					S-20
TOTAL SHEETS					24

DRAWN BY: D.A. DAVENPORT DATE: 11/09
 CHECKED BY: S.H. SOCKWELL DATE: 11/17/09

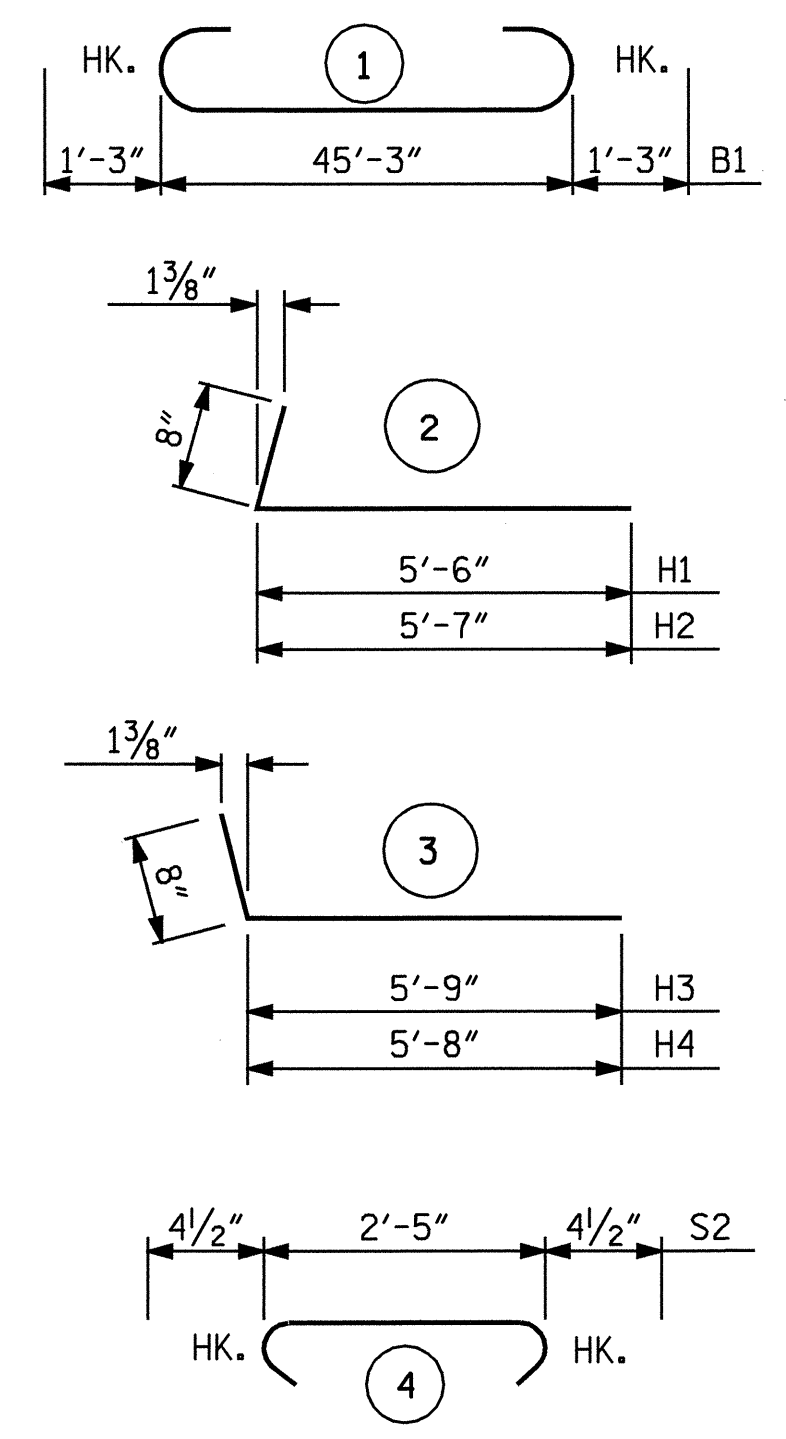




SECTION A-A



LATERAL GUIDE
(EACH END SIMILAR)



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	47'-9"	1299
B2	2	#6	STR	45'-4"	136
B3	8	#4	STR	23'-11"	128
B4	4	#4	STR	13'-5"	36
B5	11	#4	STR	2'-5"	18
D1	26	#6	STR	1'-6"	59
H1	6	#4	2	6'-3"	25
H2	6	#4	2	6'-2"	25
H3	6	#4	3	6'-5"	26
H4	6	#4	3	6'-4"	25
K1	12	#4	STR	3'-2"	25
S1	44	#4	5	7'-5"	218
S2	44	#4	4	3'-2"	93
S3	14	#4	7	6'-6"	61
U1	9	#4	6	5'-5"	33
U2	4	#4	6	4'-5"	12
V1	40	#4	STR	4'-11"	131

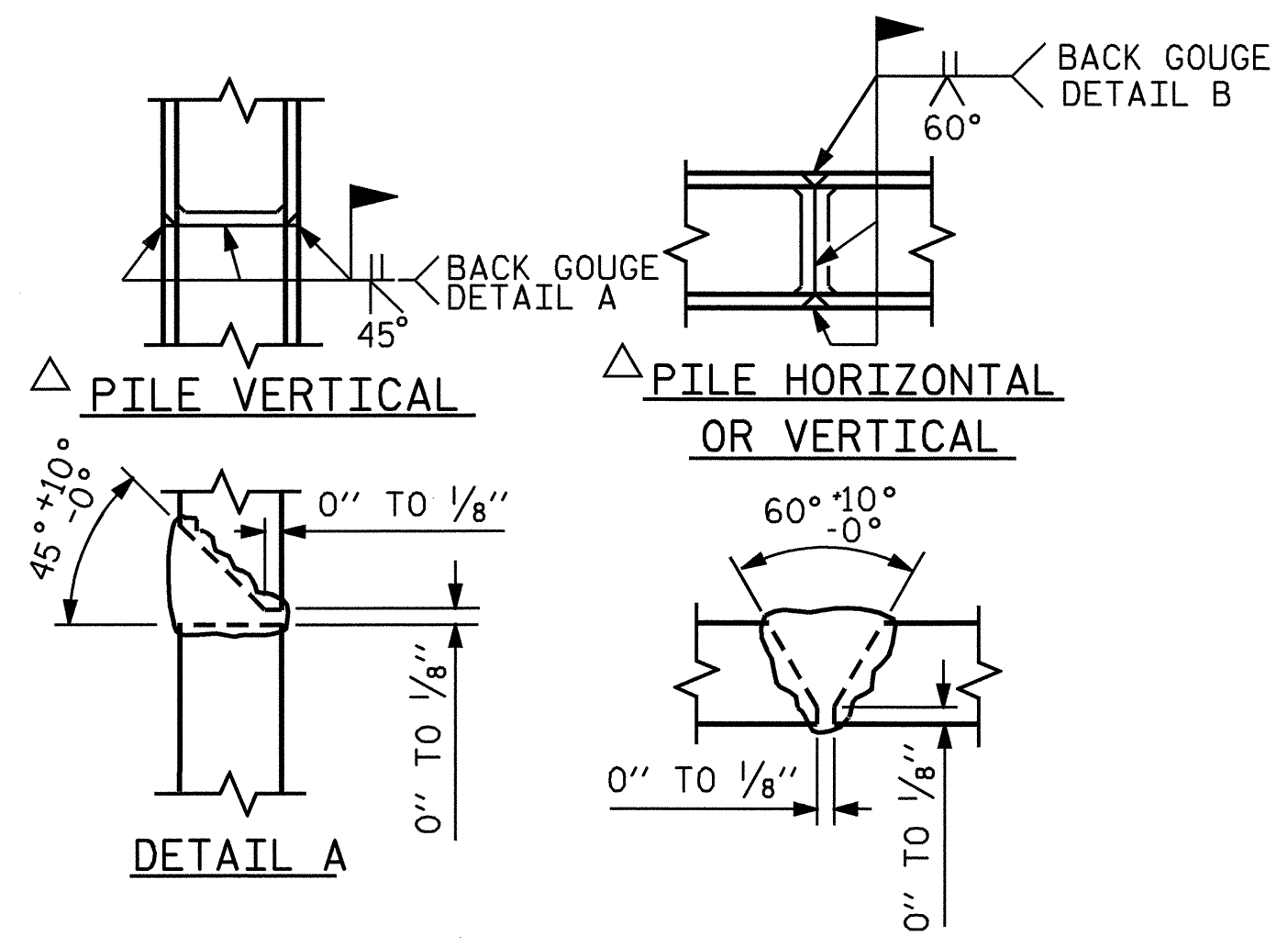
REINFORCING STEEL = 2350 LBS

CLASS A CONCRETE BREAKDOWN

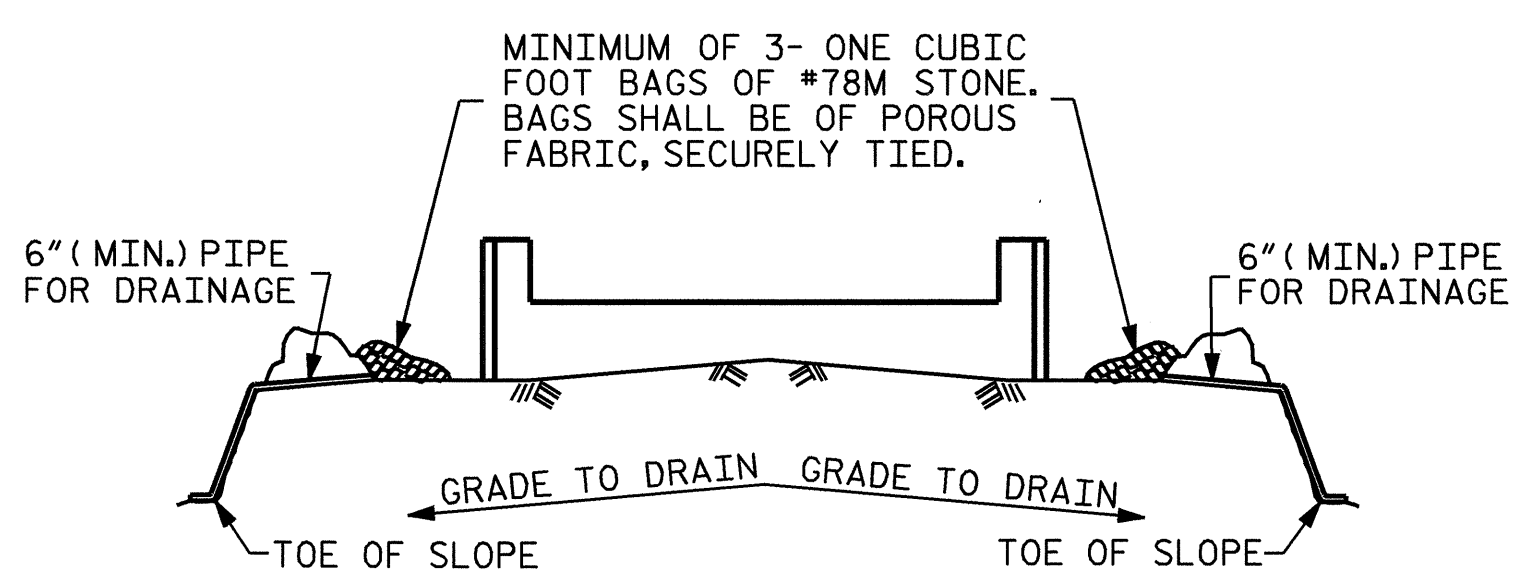
POUR #1 CAP, LOWER PART OF WINGS & PILE COLLARS (C.Y.)	14.8
POUR #2 UPPER PART OF WINGS (C.Y.)	1.7
POUR #3 LATERAL GUIDES (C.Y.)	0.1
TOTAL CLASS A CONCRETE (C.Y.)	16.6

HP 12 X 53 STEEL PILES NO. 7 (LIN FT.) 70

STEEL PILES POINTS EACH 7



PILE SPLICE DETAILS



BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR EFFECTIVENESS.

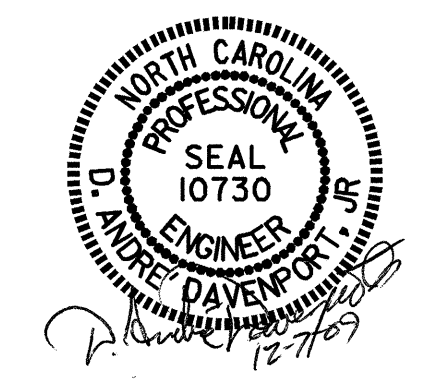
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT

PROJECT NO. B-4216
ORANGE COUNTY
STATION: 18+55.00 -L-

SHEET 3 OF 3
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**SUBSTRUCTURE
END BENT #2**

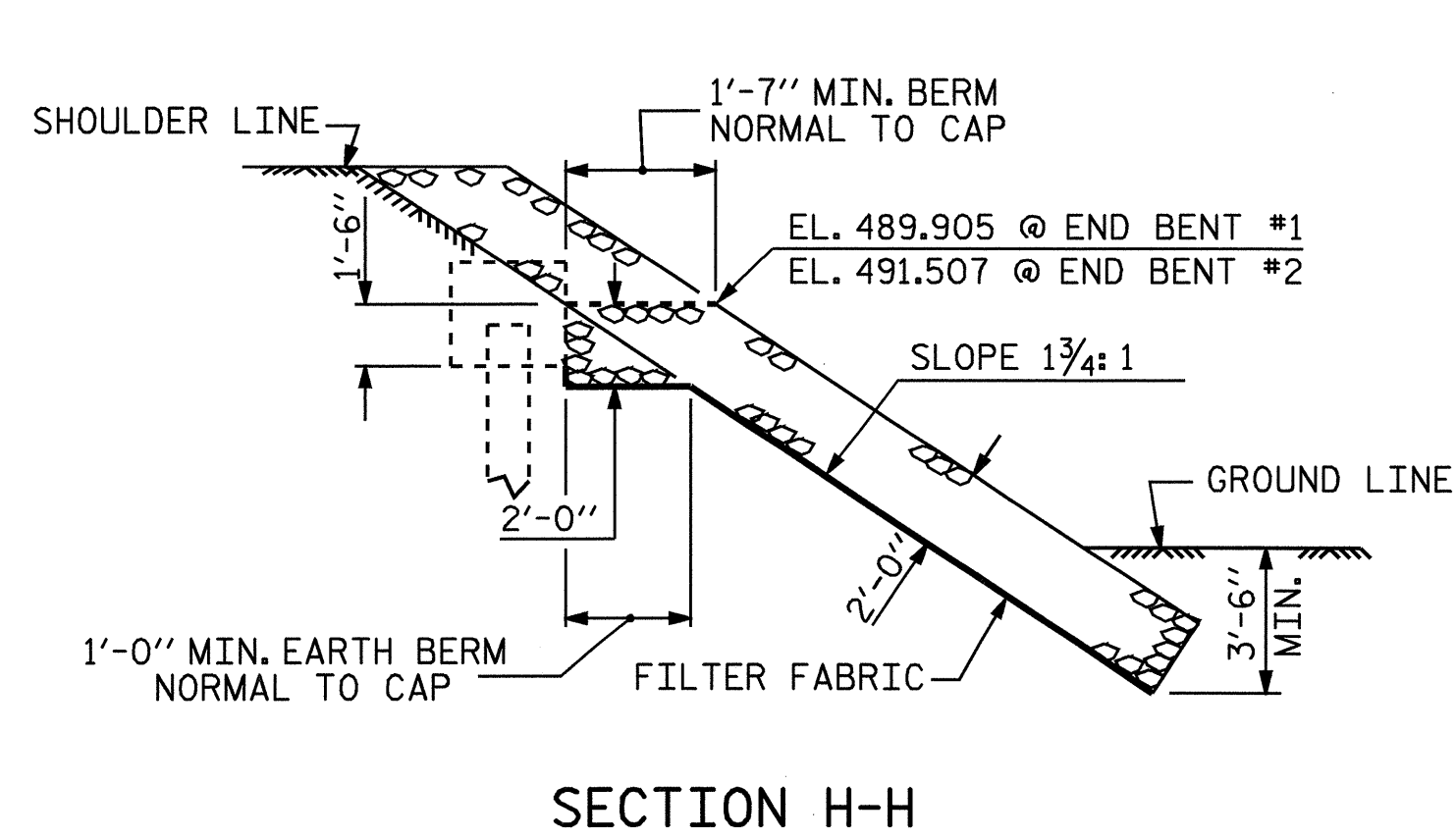
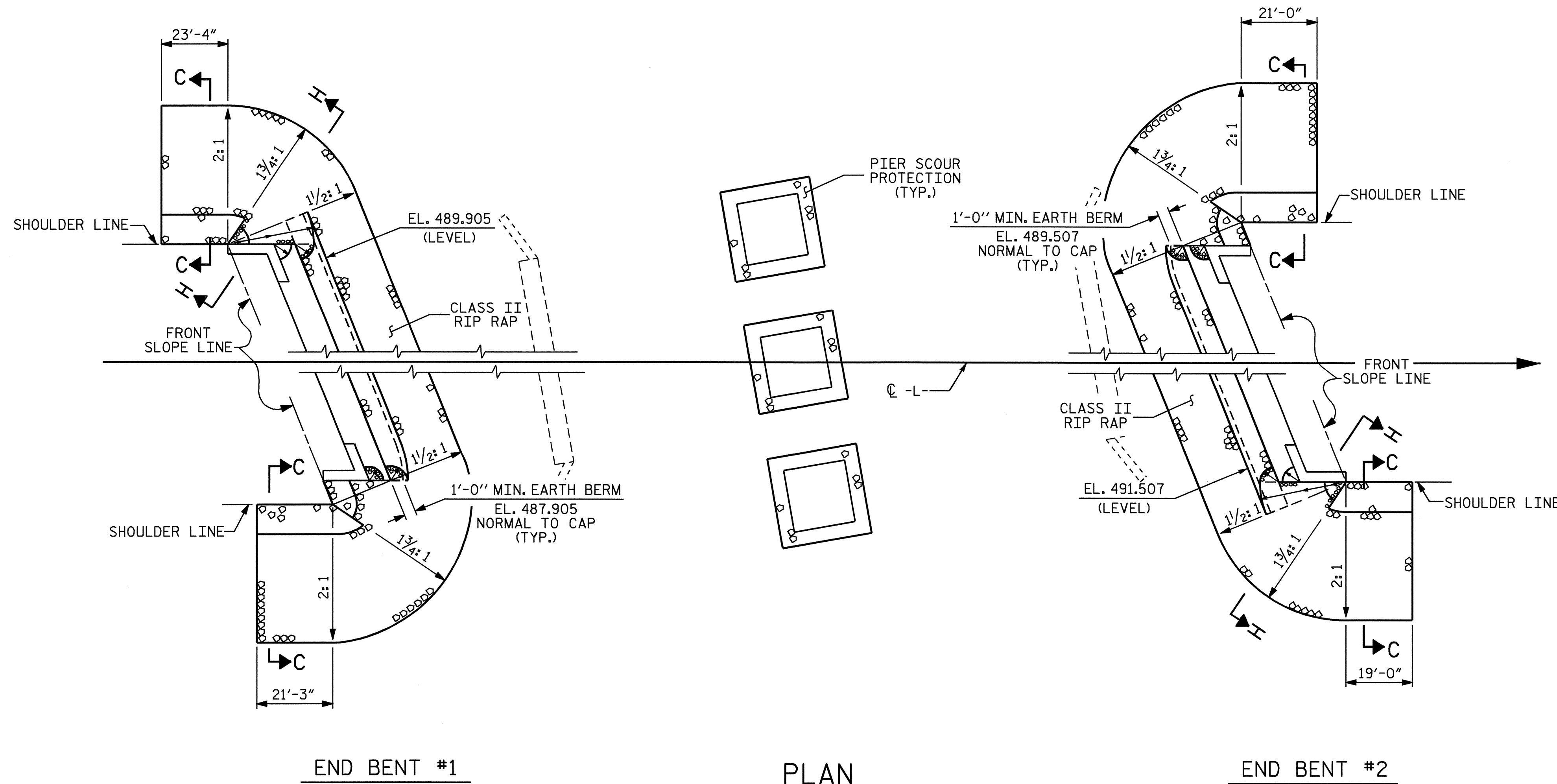


DRAWN BY: D.A. DAVENPORT DATE: 11/09
CHECKED BY: S.H. SOCKWELL DATE: 11/17/09

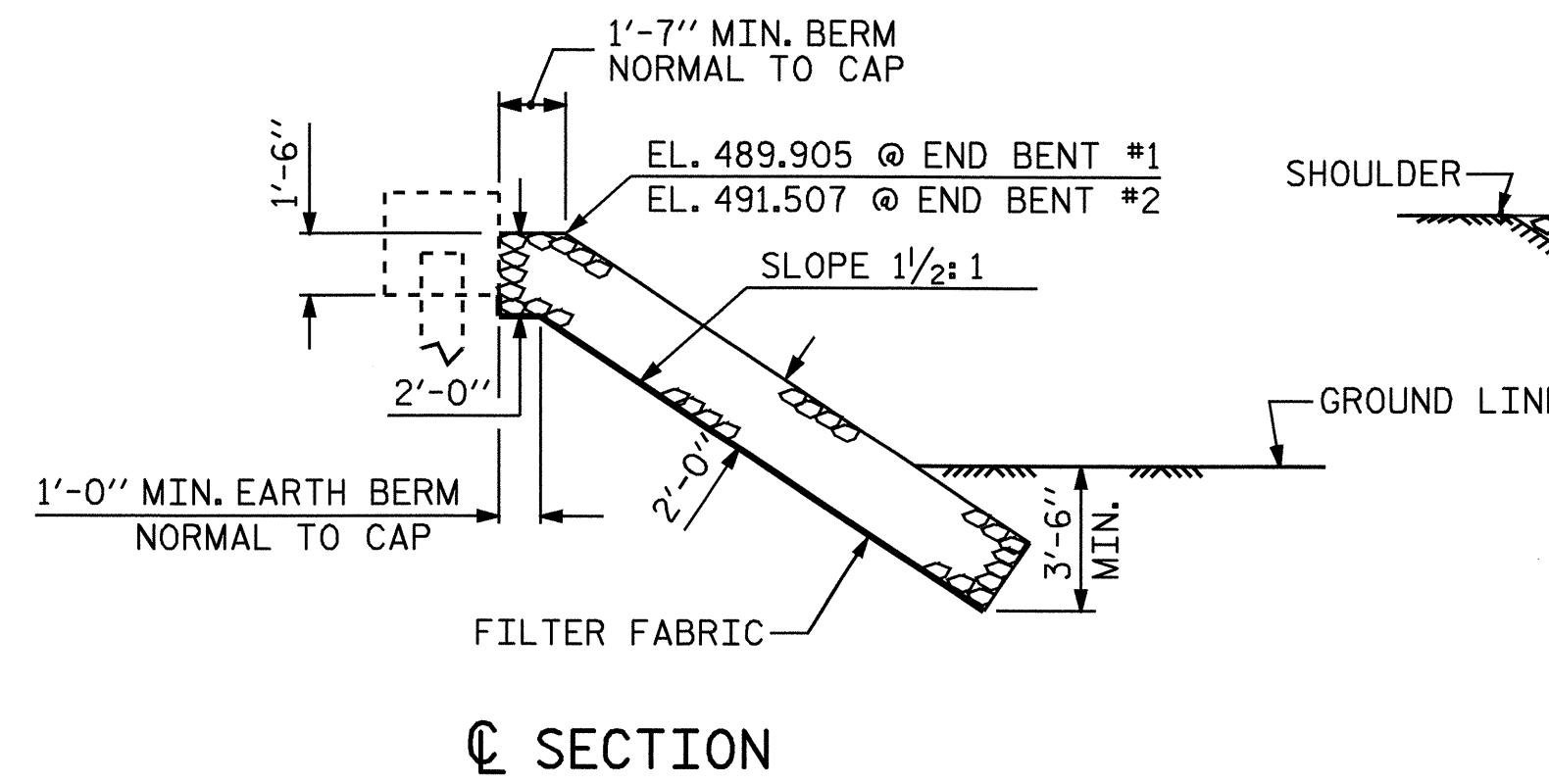
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NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

TOTAL SHEETS 24

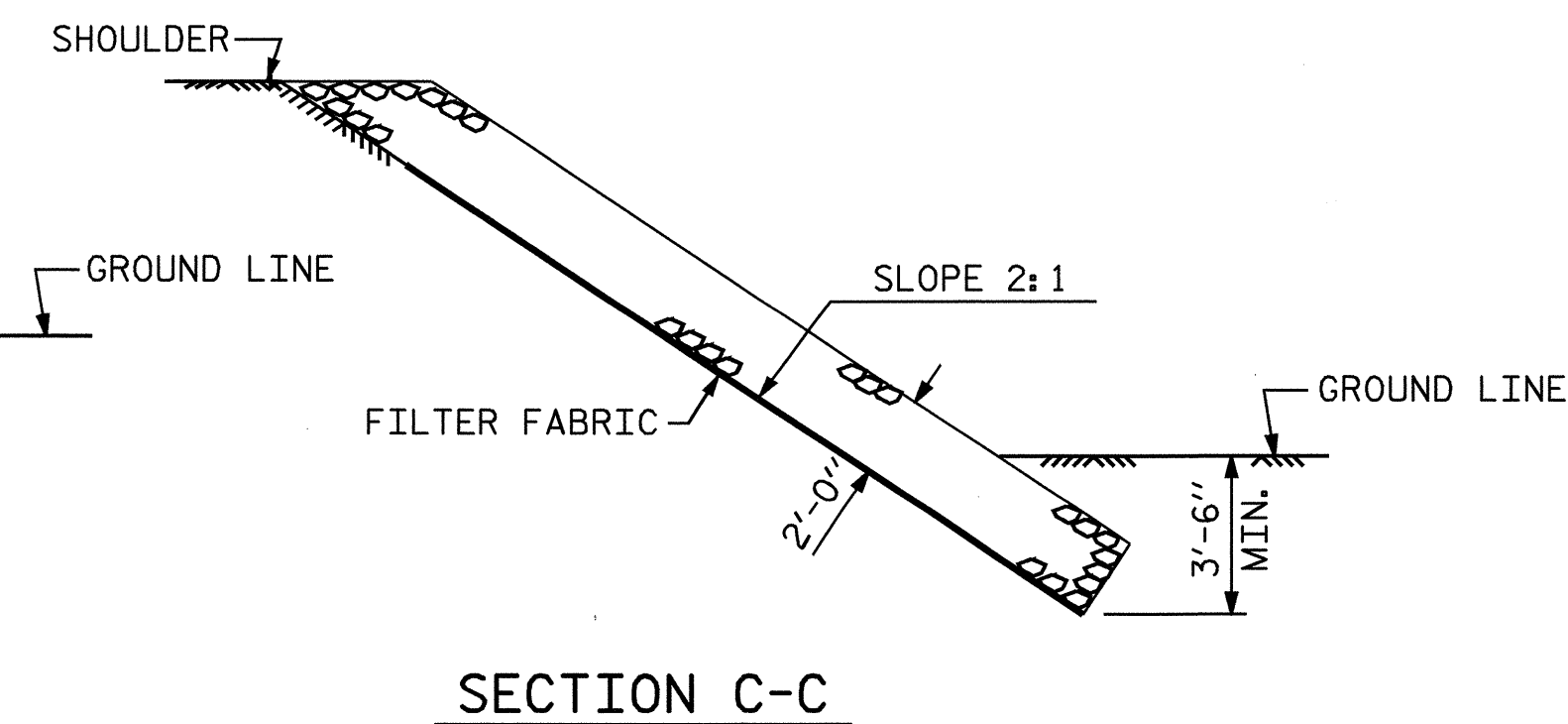
ESTIMATED QUANTITIES		
BRIDGE @ STA. 18+55.00 -L-	RIP RAP CLASS II	FILTER FABRIC FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	210	230
END BENT 2	265	295
TOTAL	475	525



SECTION H-H



SECTION C-C
BERM RIP RAPPED

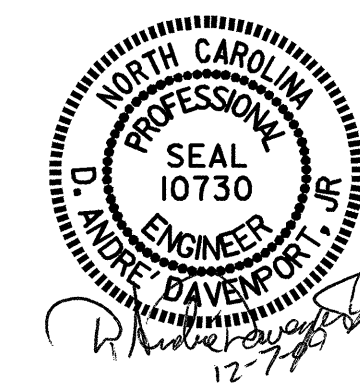


SECTION C-C

PROJECT NO. B-4216
ORANGE COUNTY
 STATION: 18+55.00 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

—RIP RAP DETAILS—

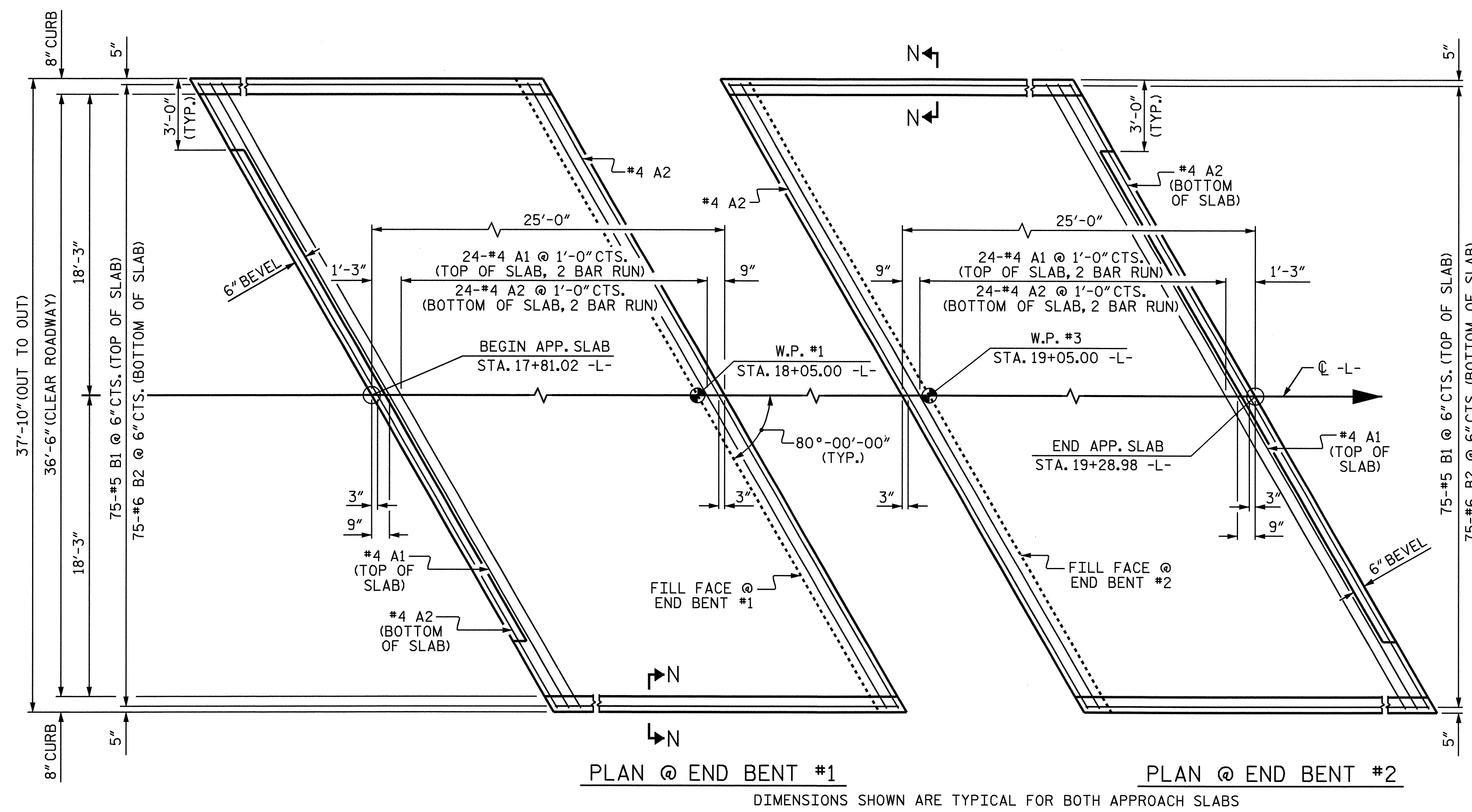


ASSEMBLED BY : A. SORSENGINH DATE : 10/1/07
 CHECKED BY : M. G. SHAIKH DATE : 4/18/08
 DRAWN BY : REK 1/84 REV. 8/16/99 RWW/LES
 CHECKED BY : RDU 1/84 REV. 10/17/00 RWW/LES
 REV. 5/1/06 TLA/GM

07-DEC-2009 08:17
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 gdavenport

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-22
1			3			TOTAL SHEETS 24
2			4			

SKEW < 90° STD. NO. RR1



NOTES

FOR REINFORCED BRIDGE APPROACH FILL INCLUDING FABRIC, IMPERMEABLE GEOMEMBRANE, 4" Ø DRAINAGE PIPE, #78M STONE, AND SELECT MATERIAL, SEE ROADWAY PLANS.

AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.

THE 6" COMP. A.B.C. SHALL BE FLUSH WITH ROADWAY END OF THE APPROACH SLAB AND SHALL EXTEND 1'-0" OUTSIDE OF EACH EDGE OF SLAB.

THE CONTRACTOR MAY USE 4" TYPE B-25.0B ASPHALT CONCRETE BASE COURSE IN LIEU OF 6" COMP. A.B.C. IF THIS OPTION IS USED, THE BASE COURSE SHALL BE FLUSH WITH ROADWAY END OF THE APPROACH SLAB AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB.

THE CONTRACTOR MAY USE 5" CLASS "A" CONCRETE BASE IN LIEU OF 6" COMP. A.B.C. IF THIS OPTION IS USED, THE CONCRETE BASE SHALL BE FLUSH WITH ROADWAY END OF THE APPROACH SLAB AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB. THE CONCRETE SHALL BE FINISHED TO A SMOOTH SURFACE AND A LAYER OF 30 LB ROOFING FELT SHALL BE PLACED BETWEEN THE CONCRETE BASE AND THE APPROACH SLAB TO PREVENT BOND. THE APPROACH SLAB SHALL NOT BE CAST UNTIL THE CONCRETE BASE HAS REACHED AN AGE OF THREE CURING DAYS.

FOR EVAZOTE JOINT SEALS, SEE SPECIAL PROVISIONS.

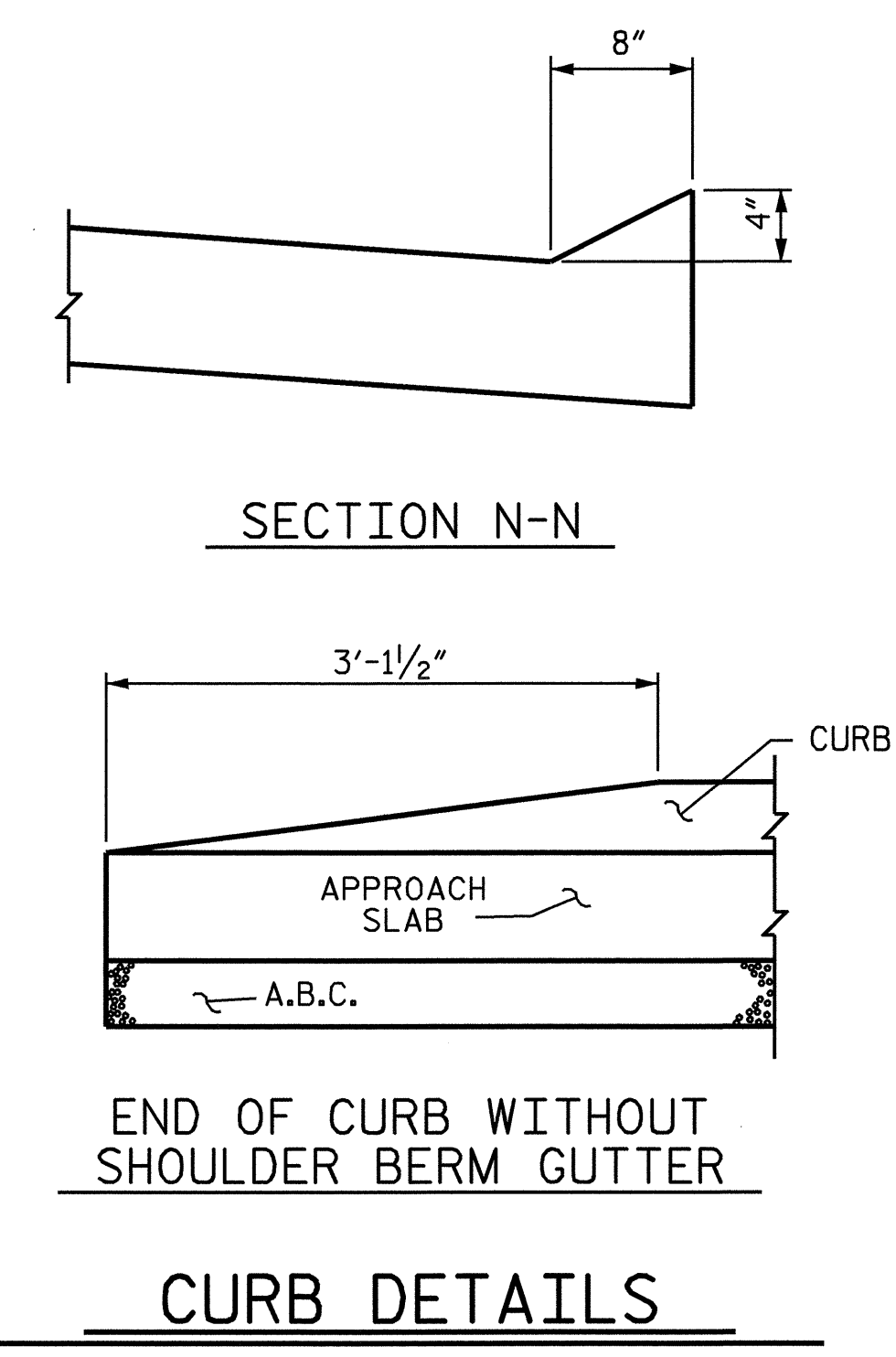
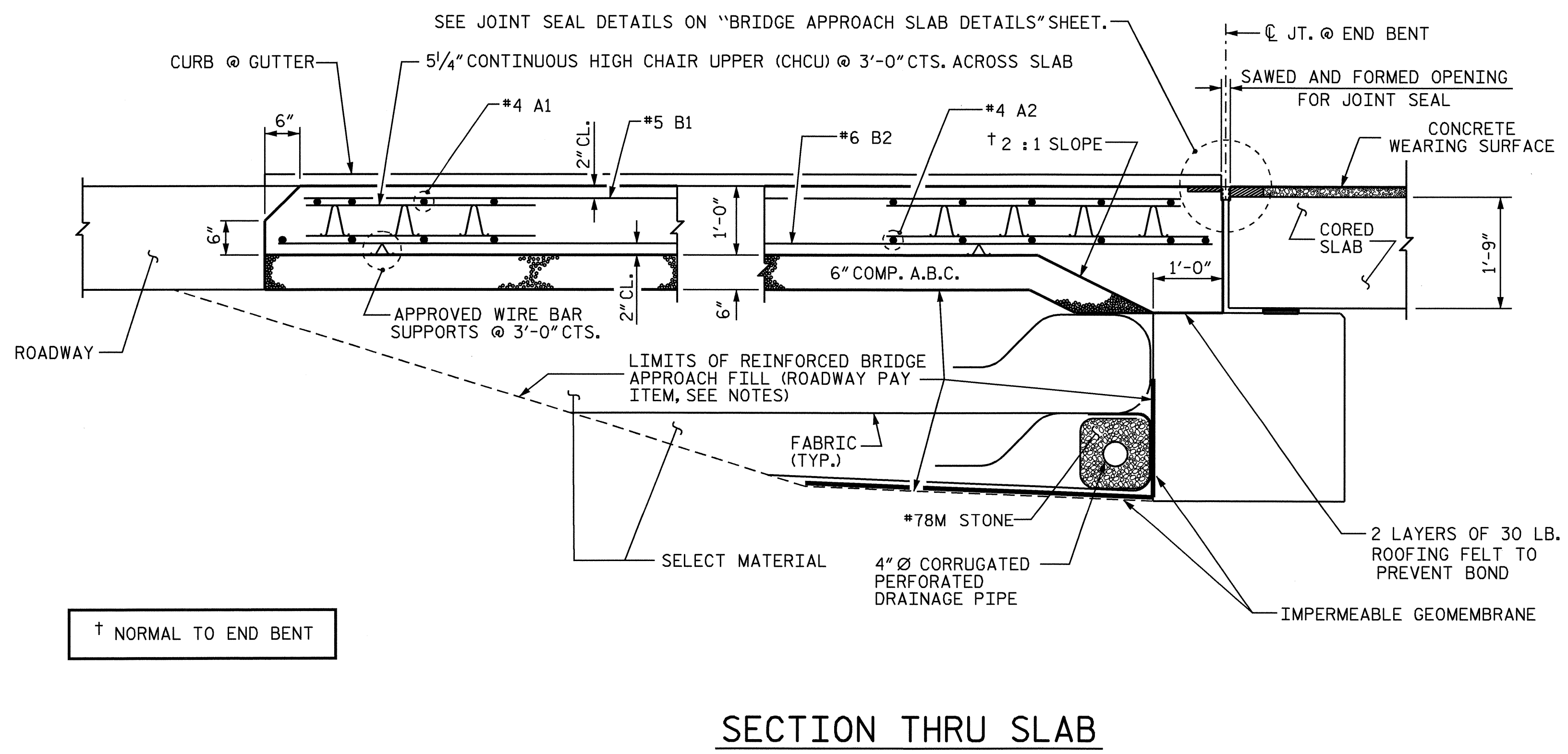
THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE EVAZOTE JOINT SEAL SHALL BE 2 1/2".

FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

APPROACH SLABS SHALL BE POURED AFTER CONCRETE OVERLAY IS POURED.

THE JOINT SHALL BE SAWED AFTER THE CASTING OF THE PARAPET.

BILL OF MATERIAL					
APPROACH SLAB AT EB #1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	50	#4	STR	20'-1"	671
A2	52	#4	STR	19'-11"	692
*B1	75	#5	STR	23'-9"	1858
B2	75	#6	STR	24'-8"	2779
REINFORCING STEEL				LBS.	3471
*EPOXY COATED REINFORCING STEEL				LBS.	2529
CLASS AA CONCRETE				C. Y.	39.5
APPROACH SLAB AT EB #2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	50	#4	STR	20'-1"	671
A2	52	#4	STR	19'-11"	692
*B1	75	#5	STR	23'-9"	1858
B2	75	#6	STR	24'-8"	2779
REINFORCING STEEL				LBS.	3471
*EPOXY COATED REINFORCING STEEL				LBS.	2529
CLASS AA CONCRETE				C. Y.	39.5



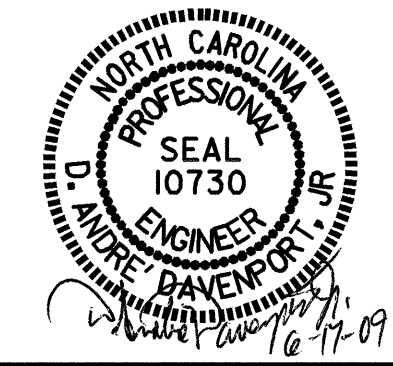
PROJECT NO. B-4216
ORANGE COUNTY
 STATION: 18+55.00 -L-

SHEET 1 OF 2

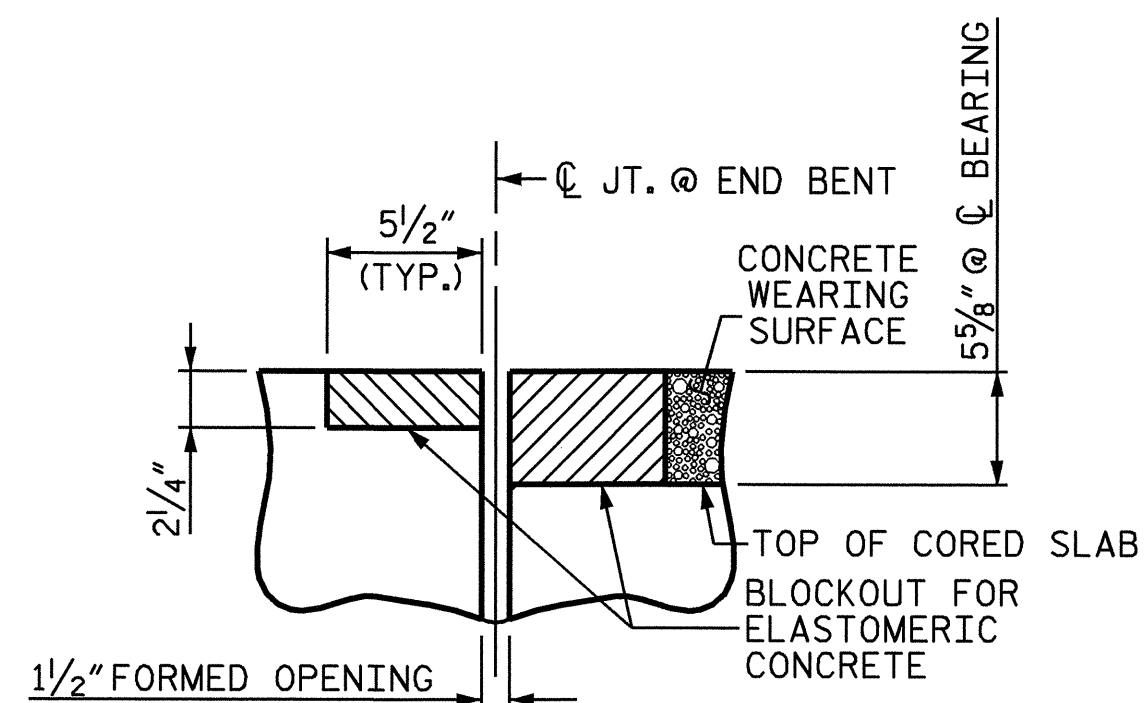
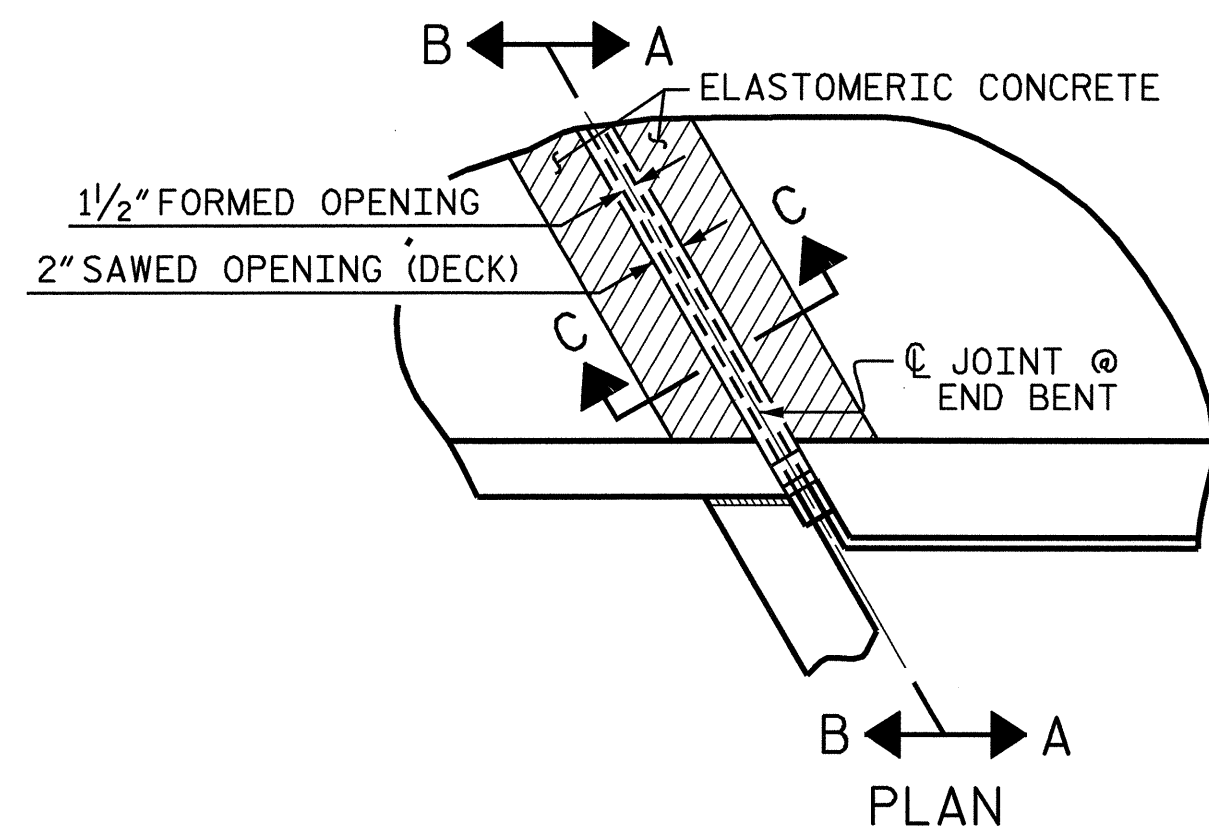
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

BRIDGE APPROACH SLAB FOR PRESTRESSED CONCRETE CORED SLAB

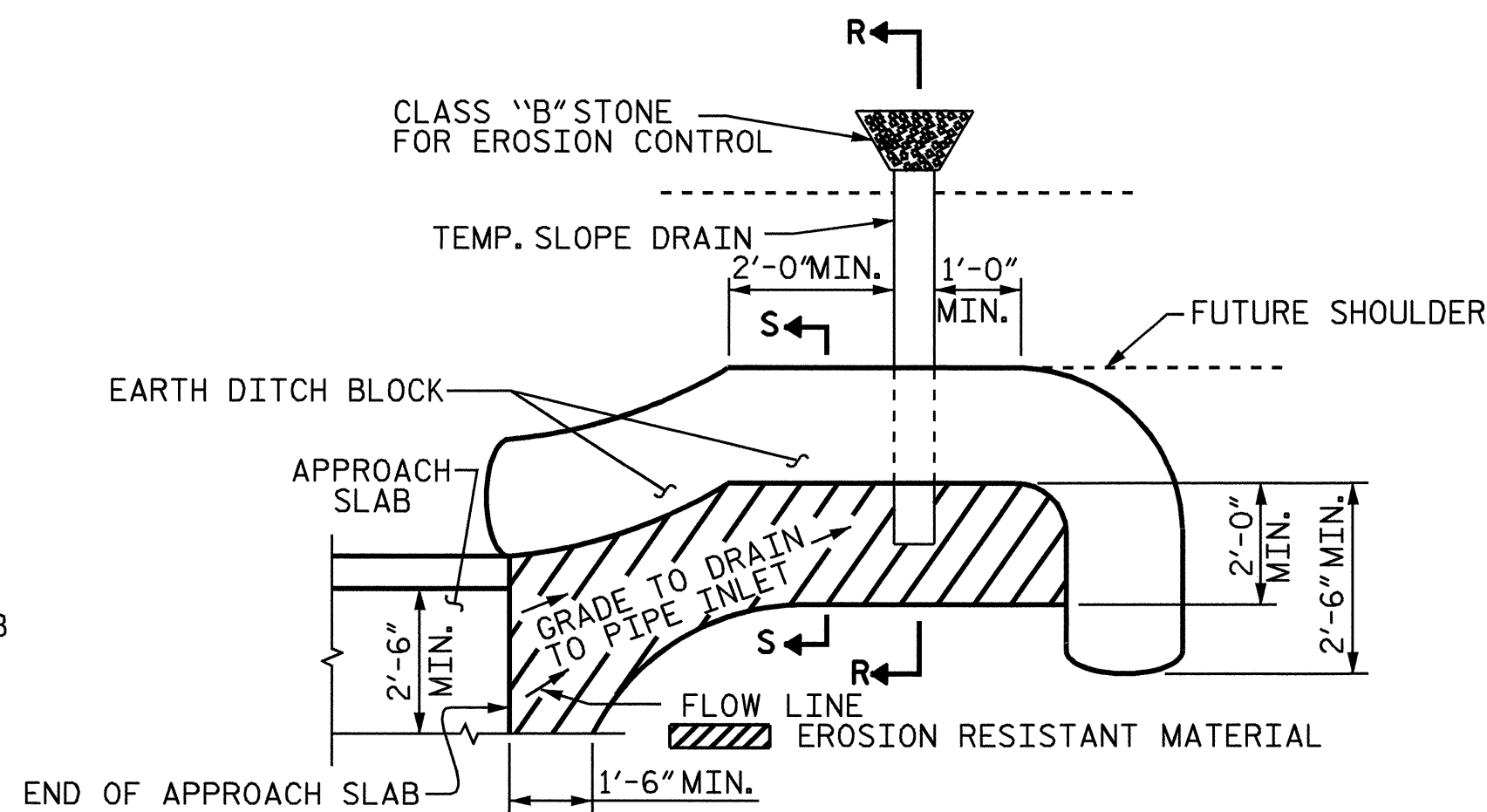
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-23
1			3			TOTAL SHEETS 24
2			4			



ASSEMBLED BY : M. G. SHAIKH DATE : 04-27-07
 CHECKED BY : C. R. YARBROUGH DATE : 06-11-07
 DRAWN BY : FCJ 6/87 REV. 7/10/01 LES/RDR
 CHECKED BY : EGA 6/87 REV. 5/7/03R RWW/JTE
 REV. 5/1/06 TLA/GM

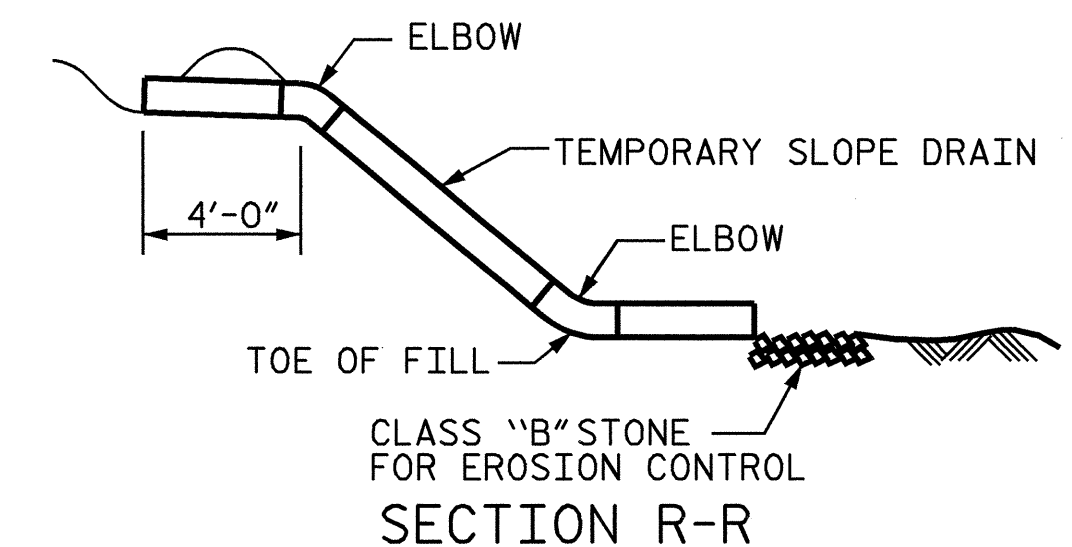


SECTION C-C
EVAZOTE JOINT SEAL
(PRE-SAWED ELASTOMERIC
CONCRETE DIMENSIONS)

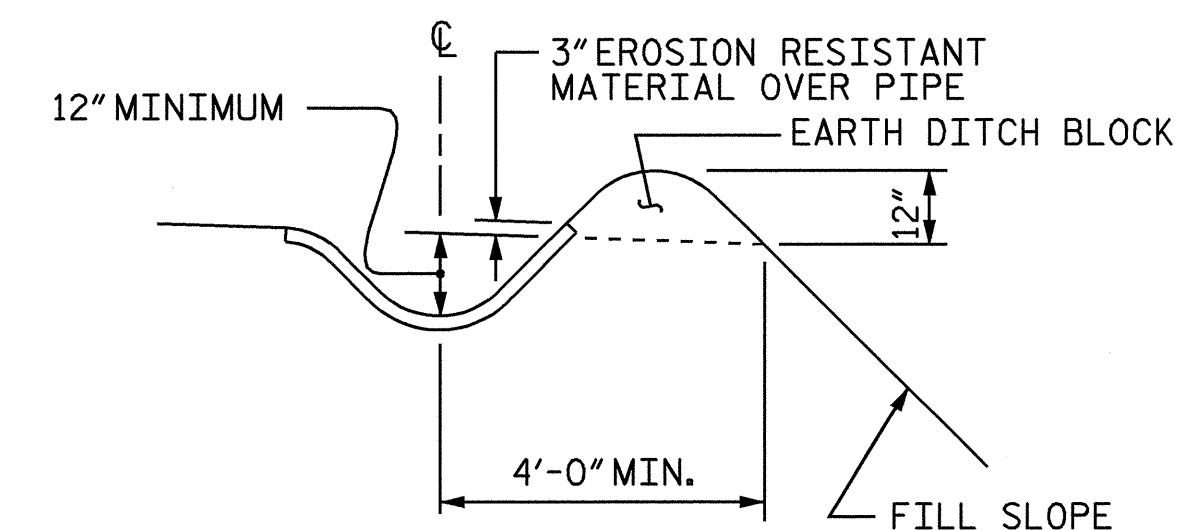


NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN. 2" DEPTH, 2) EROSION CONTROL MAT, OR 3) CONCRETE, AS DIRECTED BY THE ENGINEER. THE SLOPE DRAIN SHALL CONSIST OF A NON-PERFORATED TEMPORARY DRAINAGE PIPE, 12 INCHES IN DIAMETER.

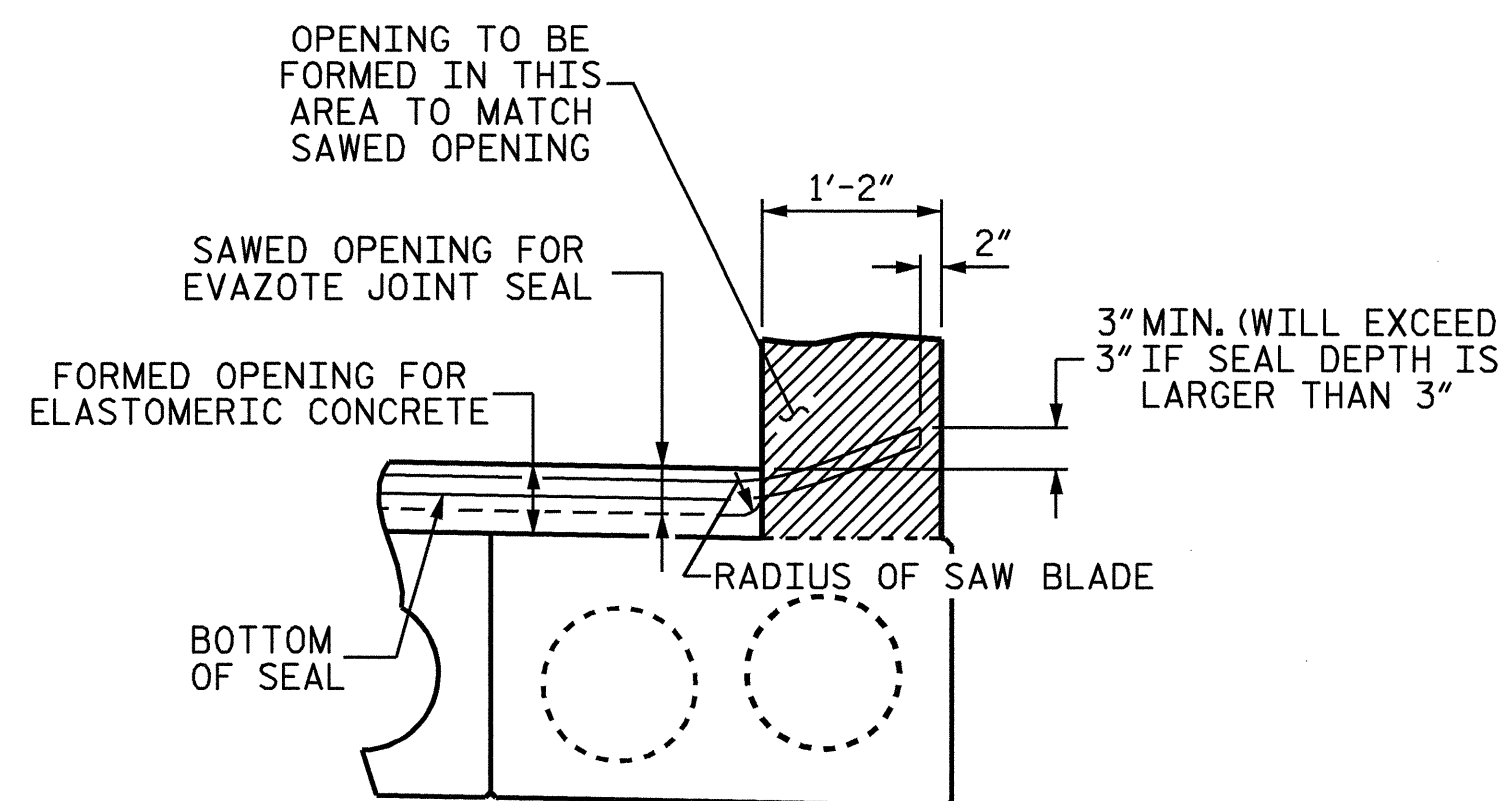
PLAN VIEW



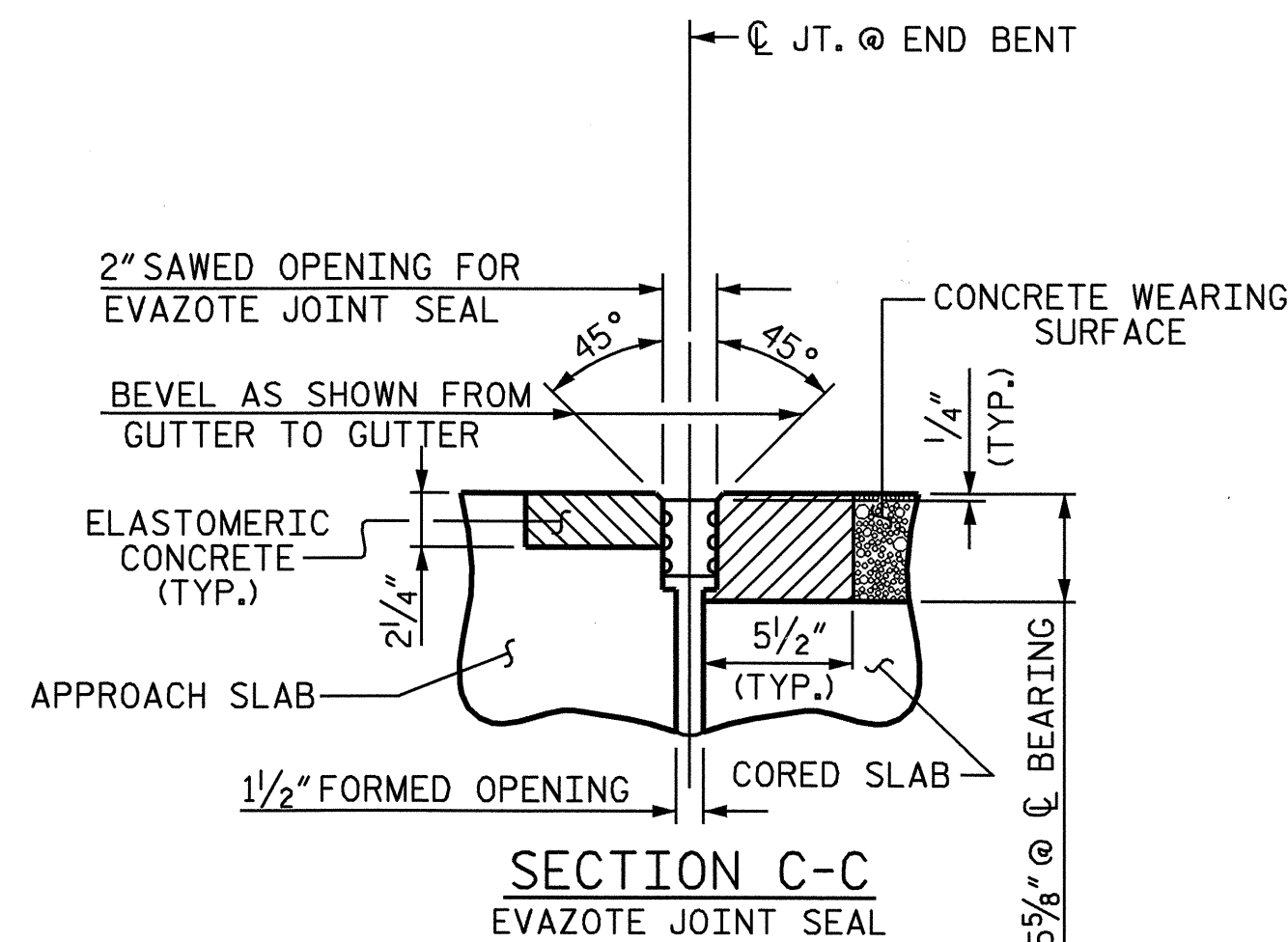
SECTION R-R



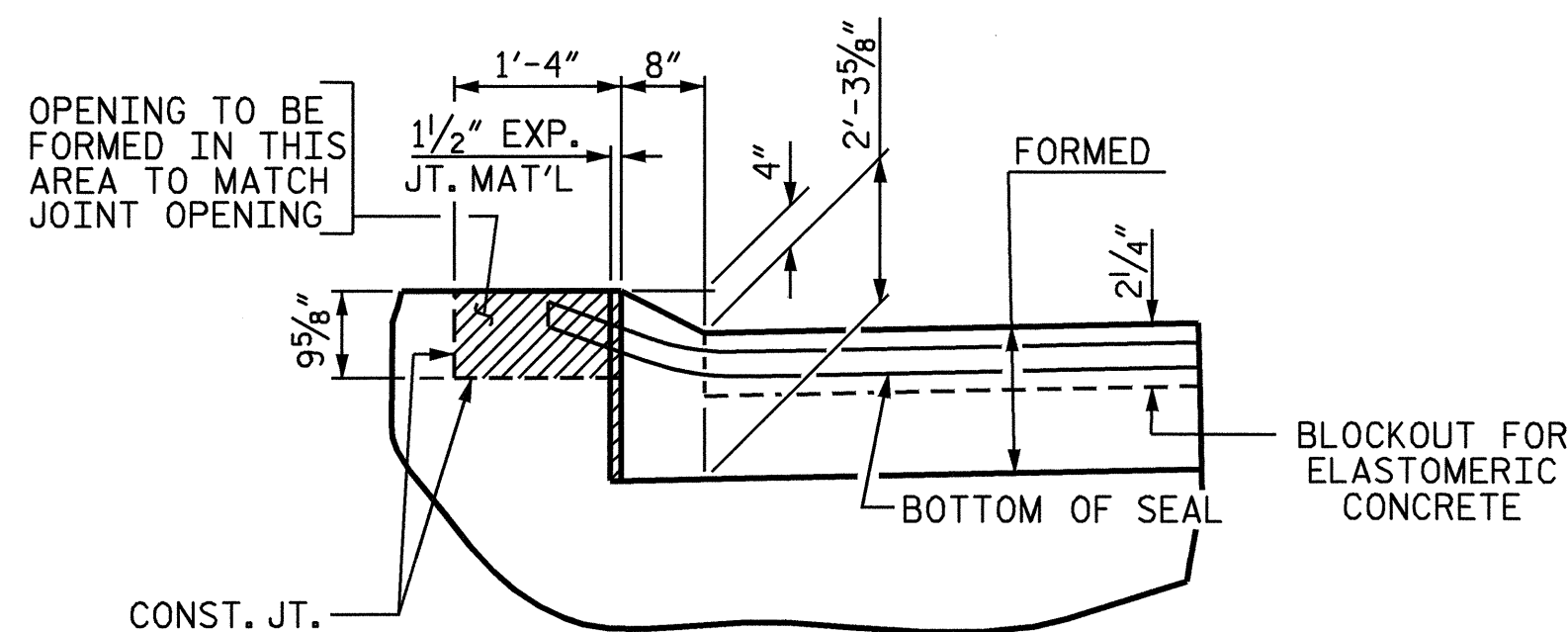
SECTION S-S



SECTION A-A



SECTION C-C
EVAZOTE JOINT SEAL



SECTION B-B

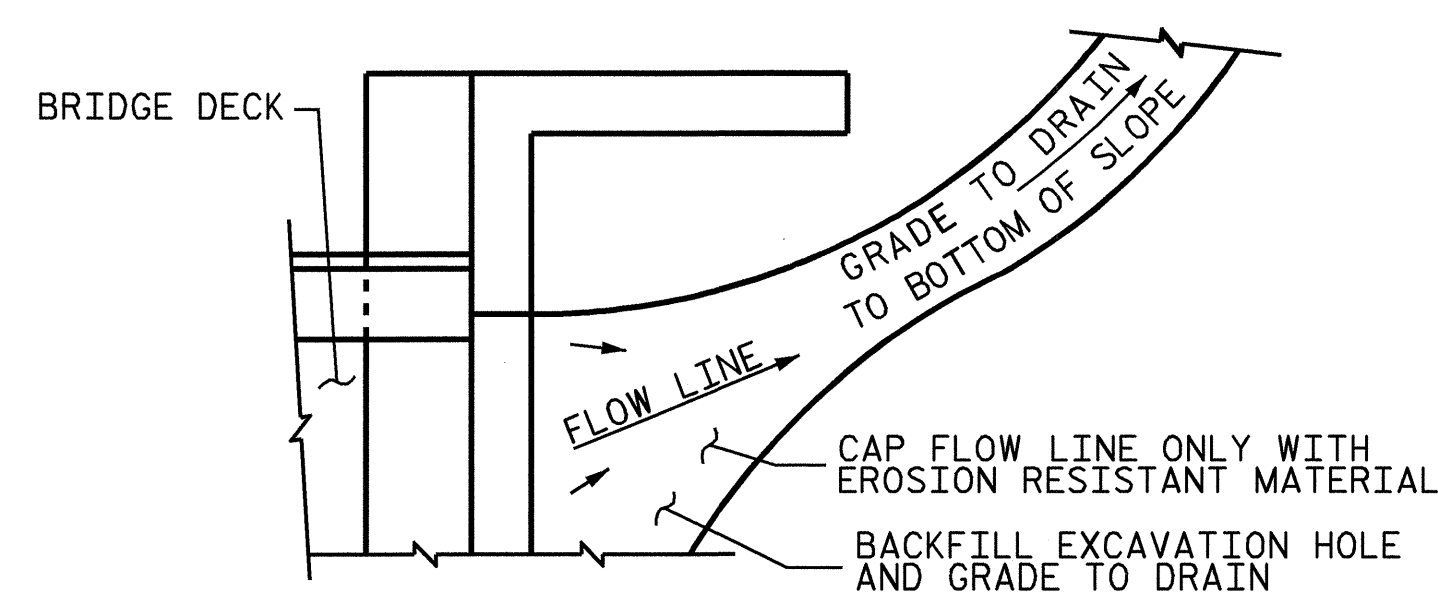
JOINT SEAL DETAILS @ END BENT

ELASTOMERIC CONCRETE	
END BENT NO.	ELASTOMERIC CONCRETE * (CU. FT.)
1	11.21
2	11.21
TOTAL	22.41

* BASED ON THE MINIMUM BLOCKOUT SHOWN.

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT TO THE STRUCTURE. THE CONTRACTOR WILL BE REQUIRED TO REMOVE THESE MATERIALS PRIOR TO CONSTRUCTION OF THE APPROACH SLAB.

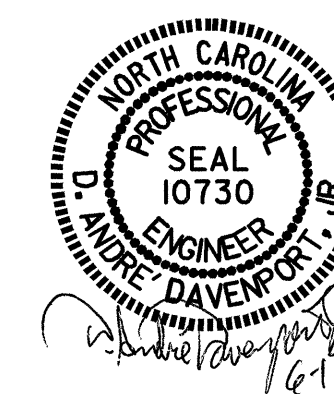
TEMPORARY DRAINAGE DETAIL

PROJECT NO. B-4216
ORANGE COUNTY
STATION: 18+55.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**BRIDGE APPROACH
SLAB DETAILS**



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-24
1			3			TOTAL SHEETS 24
2			4			

ASSEMBLED BY : M. G. SHAIKH DATE : 04-27-07
CHECKED BY : C. R. YARBROUGH DATE : 06-11-07
DRAWN BY : FCJ 11/88 REV. 10/17/00 RWW/LES
CHECKED BY : ARB 11/88 REV. 5/1/03 RWW/JTE
REV. 5/1/06 TLA/GM

STANDARD NOTES

DESIGN DATA:

SPECIFICATIONS	-----	A.A.S.H.T.O. (CURRENT)
LIVE LOAD	-----	SEE PLANS
IMPACT ALLOWANCE	-----	SEE A.A.S.H.T.O.
STRESS IN EXTREME FIBER OF		
STRUCTURAL STEEL - AASHTO M270 GRADE 36	-	20,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50W	-	27,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50	-	27,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION		
GRADE 60	--	24,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION	-----	1,200 LBS. PER SQ. IN.
CONCRETE IN SHEAR	-----	SEE A.A.S.H.T.O.
STRUCTURAL TIMBER - TREATED OR		
UNTREATED - EXTREME FIBER STRESS	-----	1,800 LBS. PER SQ. IN.
COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER	-----	375 LBS. PER SQ. IN.
EQUIVALENT FLUID PRESSURE OF EARTH	-----	30 LBS. PER CU. FT. (MINIMUM)

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2006 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N.C. DEPARTMENT OF TRANSPORTATION.

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED 3/4" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1-1/2" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A 1/4" FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A 1/4" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE. ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER.

IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE 7/8" Ø SHEAR STUDS FOR THE 3/4" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 7/8" Ø STUDS ALONG THE BEAM AS SHOWN FOR 3/4" Ø STUDS BASED ON THE RATIO OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 5/16" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY 1/16" INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB. METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINIS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

GENERALLY, IN CASE OF DISCREPANCY, THIS STANDARD SHEET OF NOTES SHALL GOVERN OVER THE SPECIFICATIONS, BUT THE REMAINDER OF THE PLANS SHALL GOVERN OVER NOTES HEREON, AND SPECIAL PROVISIONS SHALL GOVERN OVER ALL. SEE SPECIFICATIONS ARTICLE 105-4.

ENGLISH

JANUARY, 1990

STD. NO. SN